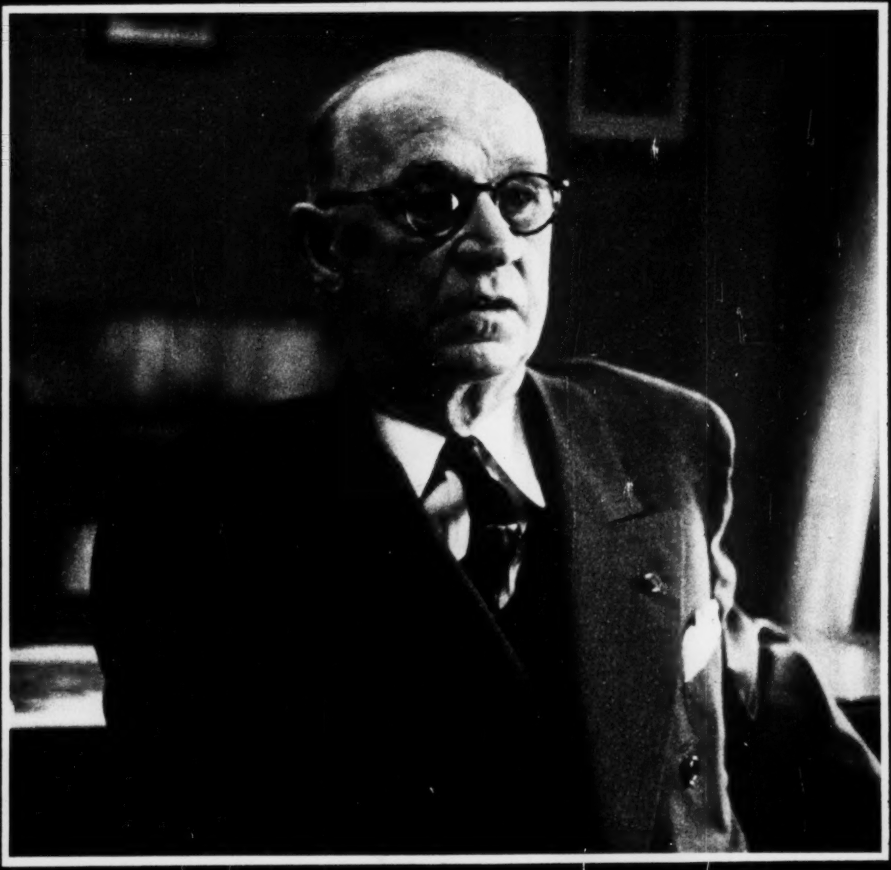
ENGINEERING NEWS-RECORD



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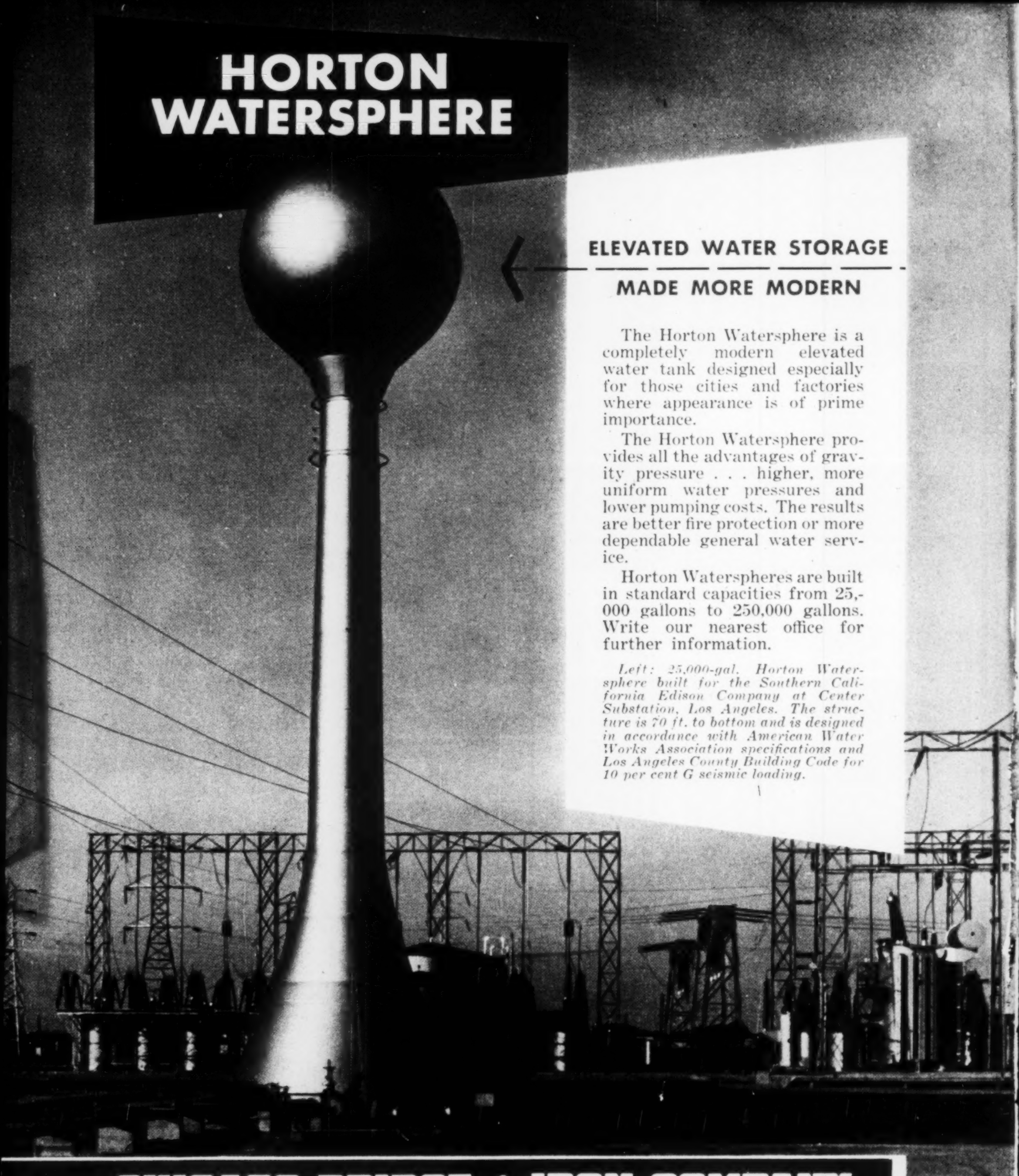
A McGRAW-HILL PUBLICATION

HORTON WATERSPHERE



ELEVATED WATER STORAGE MADE MORE MODERN

The Horton Watersphere is a completely modern elevated water tank designed especially for those cities and factories where appearance is of prime importance.

The Horton Watersphere provides all the advantages of gravity pressure . . . higher, more uniform water pressures and lower pumping costs. The results are better fire protection or more dependable general water service.

Horton Waterspheres are built in standard capacities from 25,000 gallons to 250,000 gallons. Write our nearest office for further information.

Left: 25,000-gal. Horton Watersphere built for the Southern California Edison Company at Center Substation, Los Angeles. The structure is 70 ft. to bottom and is designed in accordance with American Water Works Association specifications and Los Angeles County Building Code for 10 per cent G seismic loading.

CHICAGO BRIDGE & IRON COMPANY

2 LAPLANT-CHOATE MOTOR SCRAPERS

AVERAGE 20 MILES PER HOUR

Note the extra high apron lift of the TS300 for dumping bulky heavy materials.

MOVING RIPPED BLACK TOP

for

Weldon Zaske Construction Company
Danube, Minnesota

MOVING 18,000 yards of ripped up black top at a 20 MPH clip is typical of the speedy performance of LPC TS300 Motor Scrapers. When County Road 22, four miles north of St. Peter, Minnesota, had to be ripped up and stockpiled for re-use, Weldon Zaske of Danube used two Motor Scrapers to speed the job. Large, heaping loads of the bulky material were picked up in 45 seconds in a distance of 60 feet, and on the one mile haul to the stockpile, the rigs *averaged 20 miles per hour!* Loads were ejected in 15 seconds.

This example of the TS300's productive speed is just one of the reasons why so many contractors like Weldon Zaske are choosing LaPlant-Choate Motor Scrapers to set the pace on the toughest jobs.

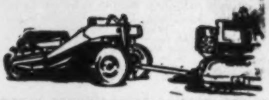
CHECK THESE OTHER BIG-PRODUCTION FEATURES

- ✓ **BIG CAPACITY** . . . 14-cu. yds. struck and 18-cu. yds. heaped, to haul bigger payloads
- ✓ **HIGH SPEED** . . . over 22 mph, assures lower average cycle time
- ✓ **BIG POWER** . . . your choice of a 280 HP Buda or a 275 HP Cummins diesel for fast acceleration and extra power when you need it
- ✓ **EASY LOADING CHARACTERISTICS** cut more valuable seconds off your cycle time
- ✓ **EXTRA HIGH APRON LIFT** and positive forced ejection mean faster, smoother spreading

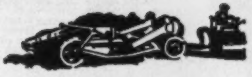
LAPLANT CHOATE

MANUFACTURING CO., INC.
CEDAR RAPIDS, IOWA, U. S. A.

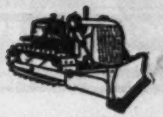
®



Cable-operated Scrapers in 6-, 8- and 14-yd. sizes for all makes of track-type tractors.



2- and 4-yd. Scrapers for track-type and rubber-tired industrial tractors.



Hydraulic and Cable-operated Dozers.

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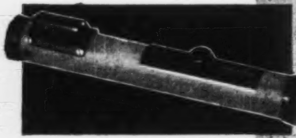
LEVELS

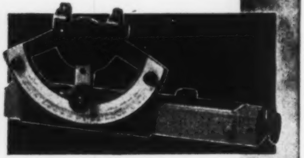
for CONVENIENCE
and ACCURACY...

Performance tells...and since 1907 precision-engineered LEUPOLD instruments have been used the world over. When you use LEUPOLD Levels you are assured of the greatest accuracy modern research and manufacturing can produce—plus timesaving convenience and versatility which no similar products can give.



LEUPOLD HAND LEVEL

Accuracy and convenience in a small package! This practical, easy-to-use Level measures 5¼ inches overall length with ¾ inch outside diameter. Exclusive LEUPOLD bubble magnifier adjusts internally to the user's eye, eliminating constant refocusing. Sealed against dust and moisture. Furnished in handsome saddle leather case.
$11.70



LEUPOLD ABNEY LEVEL

Exclusive patented design permits changing scales without removing and reversing the frame. Thumb screws hold all scales in milled slide, and any scale can be quickly superimposed on others for immediate use. Bubble magnifier adjusts internally to the user's eye, eliminating the need to refocus every time the Level is removed from its case. Thumb nut index arm adjustment provides micrometer accuracy. Radius of arc, 1¾ inches. Overall length, 6½ inches. Furnished in heavy leather case with belt loop. *Four scales available: per cent, topographic, degrees or chainage corrections.*

MODEL A (Choice of any 2 scales) **$27.50**
MODEL B (Choice of any 3 scales) **$30.00**

MAIL THIS COUPON TODAY

Encloesd is ☐ check or ☐ money order for $______
Please send the LEUPOLD Level checked below.
______The HAND LEVEL @ $11.70.
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Send literature on ☐ LEVELS ☐ COMPASSES.
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PORTLAND 13, OREGON

ENGINEERING NEWS-RECORD

Member ABP ABC

Volume 148 MAY 29, 1952 No. 22

WALDO G. BOWMAN
Editor

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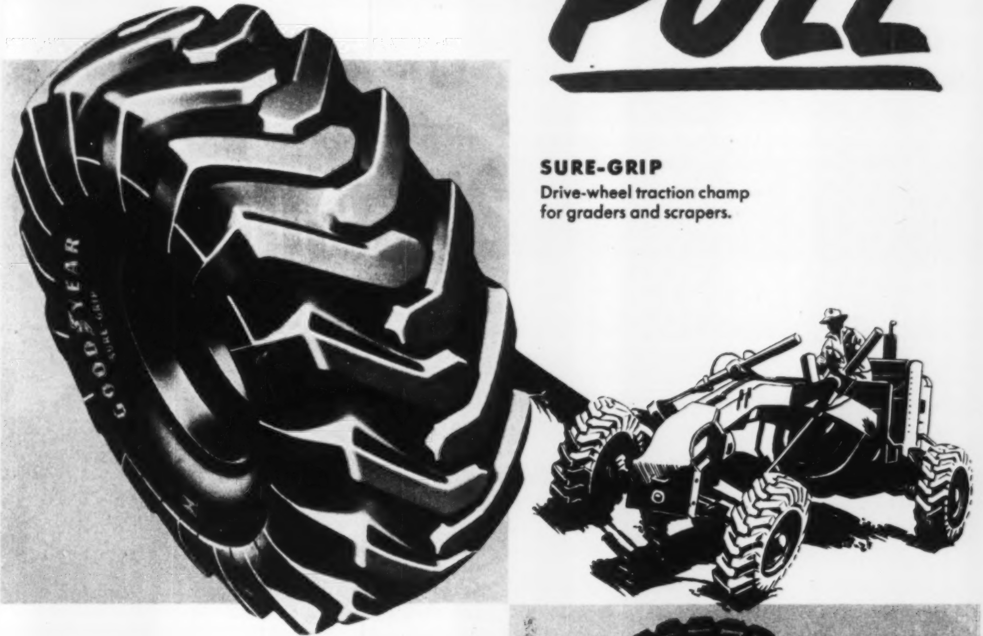
When the job calls for PULL



SURE-GRIP
Drive-wheel traction champ
for graders and scrapers.

here's the FIRST CHOICE tire

Sure-Grip in name, sure-grip in action—that's why this long-lasting Goodyear tire is the top favorite on earth-moving operations everywhere for drive wheels. Its specially engineered O-P-E-N C-E-N-T-E-R tread and extra-massive, balanced lugs are what make it the traction champ. *And cost-wise construction men know it.*

There's a Cost-Cutting
Goodyear Tire For Every Job

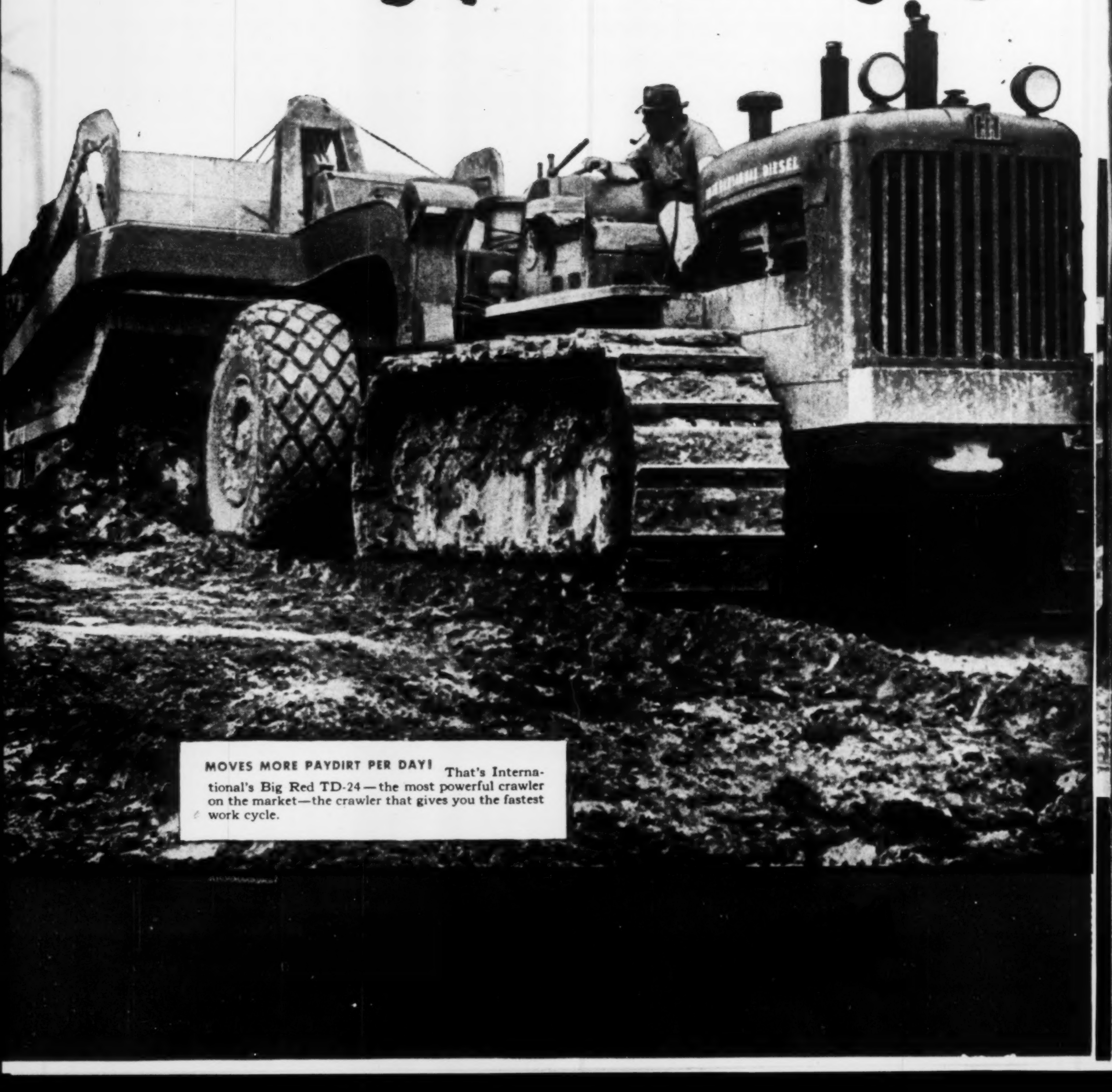
ALL-WEATHER	**HARD ROCK LUG**
Finest for flotation, rolling big loads faster	Super-tough champ for all kinds of rock work

Sure-Grip, All-Weather—T. M.'s The Goodyear Tire & Rubber Company, Akron, Ohio

GOODYEAR

MORE TONS ARE HAULED ON GOODYEAR TIRES THAN ON ANY OTHER KIND

Keep 'em Working in the big year coming up

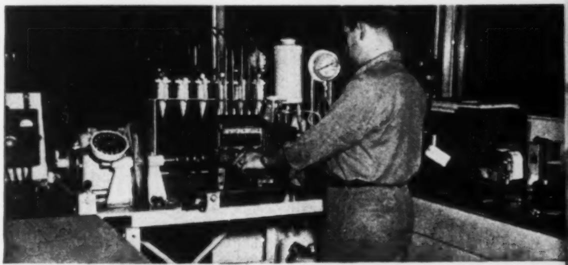


MOVES MORE PAYDIRT PER DAY! That's International's Big Red TD-24—the most powerful crawler on the market—the crawler that gives you the fastest work cycle.

Here's help... where and when you need it... with your International Industrial Distributor's ready service and parts departments

PARTS AND SERVICE

YOU NAME IT—your International Industrial Distributor has it in his big, efficient parts department. And if he hasn't, he can get it fast from his nearby International Parts Depot.



"HEART SPECIALIST!" A crawler's heart is its sturdy fuel pump. It seldom needs attention. When it does, this "diesel doctor" operates with precision instruments in a special dust-free room.

HERE'S HELP WHEN YOU NEED IT. Skilled, experienced mechanics equipped with the right tools for doing major maintenance fast at your International Distributor's shop.

ON THE JOB! Here are an International Distributor's field servicemen, on the job at the job site installing an overhauled transmission. A phone call gets this kind of service.

Your crawler tractors have to pay off with more work done per day, more days worked per year.

That means speed and power. The ability to stay on the job. Minimum downtime.

And it also means fast maintenance service at your call, when and where you need it.

That's your International Industrial Distributor's service—service that includes

TRAINED "DIESEL DOCTORS"—factory-trained specialists in maintenance and overhaul.

PROMPT FIELD SERVICE at your job site to help keep your equipment working, to get it back to work faster, to cut costly downtime on the spot.

COMPLETE SHOP FACILITIES for major work—you're never far from an International Distributor's shop, no matter where your equipment goes.

QUICK PARTS SUPPLY from your distributor's fully stocked parts department, backed by International Harvester's network of strategically located parts depots (in size and scope, exclusive in the industry).

Isn't this *complete* service a mighty good reason to get International *"Power that Pays"* for the hard-working years ahead?

INTERNATIONAL HARVESTER COMPANY
CHICAGO 1, ILLINOIS

INTERNATIONAL

INTERNATIONAL HARVESTER

POWER THAT PAYS

The Surveyor's Notebook

Reporting on Unusual Surveying Problems and Their Solutions

Notekeeper: W. & L. E. Gurley, America's Oldest Engineering Instrument Maker

Surveying the Antarctic

Comdr. Richard Black headed Antarctic East Base, 1939-41.

Surveying uncharted Antarctic areas, engineer reads azimuth with Gurley plane table outfit.

"Since many of us headed straight for the Armed Forces, little was said about the surveys of the U. S. Antarctic Service Expedition of 1939-41," says Richard B. Black, Commander of East Base. "But surveying and mapping were two of our main jobs.

"The work could be done only in the Antarctic summer, from September to March; and, even then, weather was really rough. We were plagued by snow and condensation on our telescope lenses, until the men rigged up deflection hoods for the instruments.

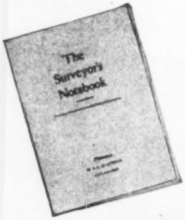
"On the Antarctic Ice Cap, we found the surface very unstable–the slightest movement threw off the instruments. We got around this with a triangular platform of light plank for the tripod, so the men could move about.

"We had Gurley instruments with us at East Base. J. Glenn Dyer, from the General Land Office, built a back harness for carrying his transit up mountains and for skiing. One time, near the Eternity Range, Glenn had just negotiated a high ridge and lost his footing. He slid down an eighth of a mile, wearing through the seats of two pairs of pants. But the Gurley was not damaged at all.

"East Base discovered more than 1500 nautical miles of coastline; mapped and observed 250,000 square miles of new area.

"When it came time to leave, the ice had not broken sufficiently for our ships to get through. So we flew out, leaving valuable equipment behind. When I wound the 30-day clock, I knew it would tick on as the only man-made sound on a lifeless continent. Later, an Argentine expedition found our Gurley instruments and sent them back to the Land Office in Washington. They are now in Alaska, I understand–still doing their job."

An interesting account of Arctic surveying, tips for using instruments under many rugged conditions, and all other stories from the first year's *"Surveyor's Notebook"* series have been gathered together in permanent booklet form. Write for your free copy of *"The Surveyor's Notebook."* Thousands of surveyors are finding it helpful.



When writing for your bound copy of "The Surveyor's Notebook" stories, ask also for Bulletin 50. It gives full details on Gurley instruments.

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W. & L. E. GURLEY, UNION PLAZA, TROY, N. Y.

Surveying and Engineering Instruments, Hydraulic Engineering Instruments, Standard Precision Weights and Measures, Paper and Textile Testing Instruments, Reticle Making Facilities, Aeronautical Navigating Instruments, Meteorological Instruments.

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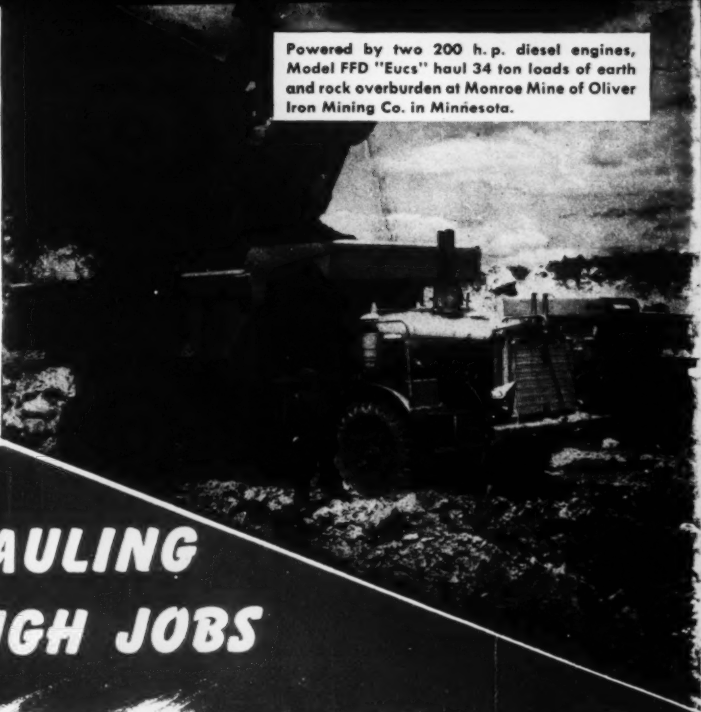
Surveying and Scientific Instrument Makers

Since 1845

"EUCS" for

LOW COST HAULING ON TOUGH JOBS



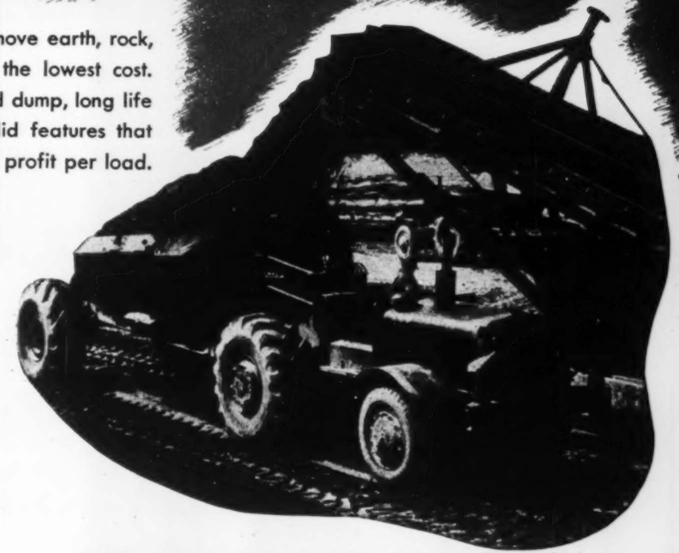
Powered by two 200 h.p. diesel engines, Model FFD "Eucs" haul 34 ton loads of earth and rock overburden at Monroe Mine of Oliver Iron Mining Co. in Minnesota.

Euclids are designed and built to move earth, rock, coal, ore and heavy excavation at the lowest cost. Large capacity, speed on the haul and dump, long life in heavy duty service, these are Euclid features that assure more loads per hour and more profit per load.

They haul big loads! Bottom-Dump Euclids have capacities of 13 to 25 cu. yds., Rear-Dump "Eucs" from 10 to 34 tons.

"Eucs" are fast! Top loaded speed of the Bottom-Dump is 34.4 m.p.h. Rear Dumps travel up to 36.3 m.p.h. with full payloads. They're powered by diesel engines from 125 to 400 h.p.

Whether you have a tough off-the-highway hauling job, or one where conditions are good, Euclids are your best bet for low cost hauling and long, dependable service.



A Bottom-Dump receives a heaped load of about 18 cu. yds. from a Euclid Loader during construction of an access road to a Hydrogen Bomb Plant site in South Carolina. Contractor: R. B. Potashnick.

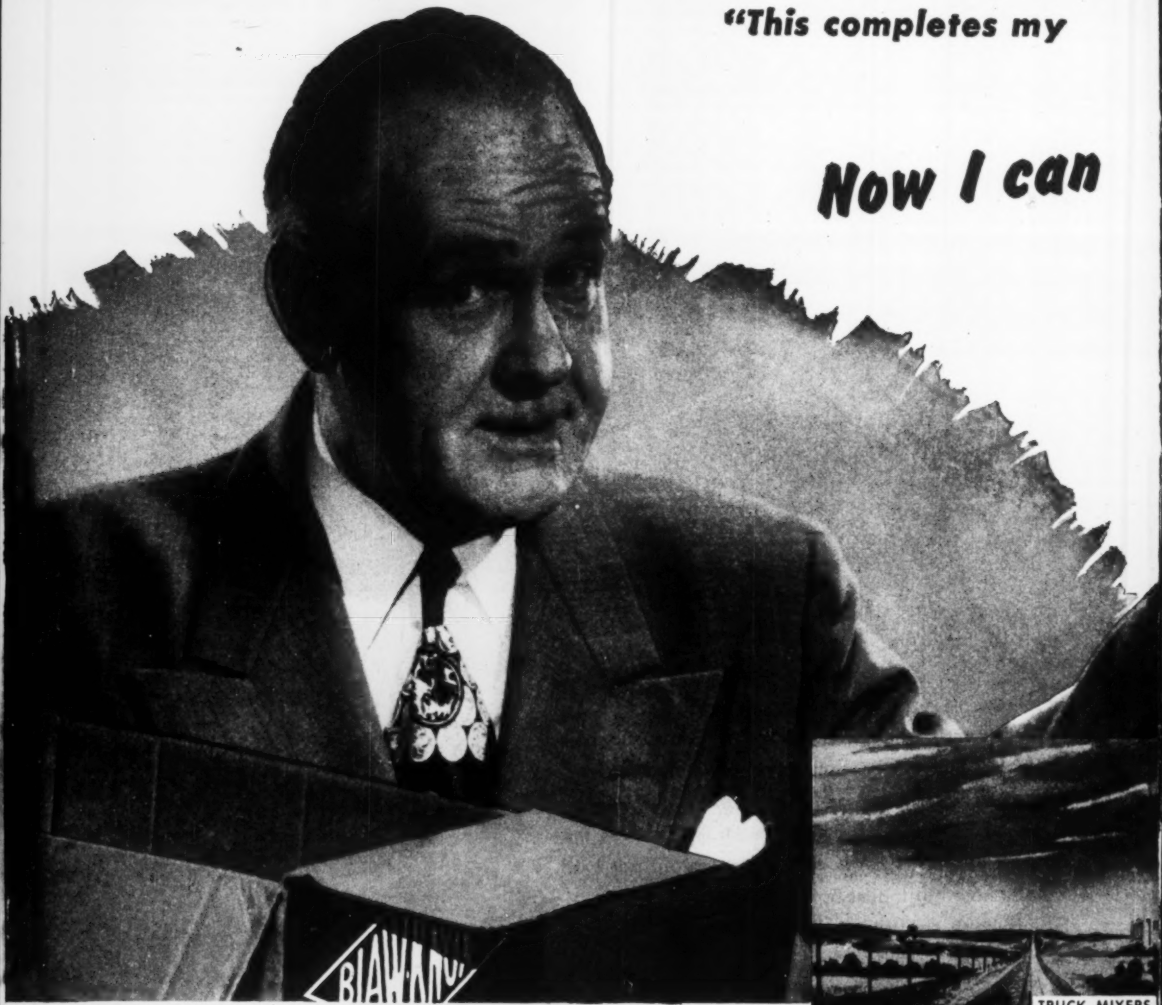
The EUCLID ROAD MACHINERY Co., CLEVELAND 17, OHIO

CABLE ADDRESS: YUKLID CODE: BENTLEY

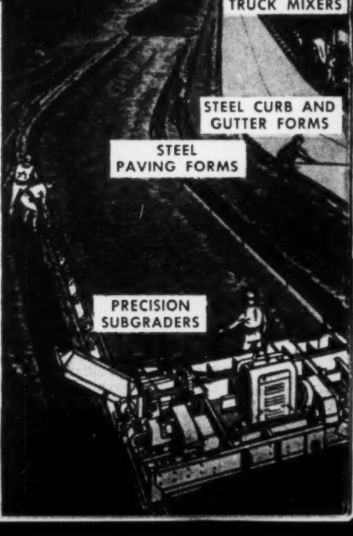
EUCLIDS *Move the Earth*

"This completes my

Now I can



BLAW-KNOX Spreader-Vibrator and Finishing Machine working on Edens Expressway near Chicago. The vibrating pan on the Spreader assured proper densification throughout the slab, even though an exceptionally stiff mix of air-entrained concrete was specified. A finish tolerance of 1/8" in 10' was required. Other Blaw-Knox equipment in this "Complete Package" included Aggregate and Cement Batching Plants, Finishing Machines and Self-Aligning Steel Road Forms. MultiFoote Pavers placed the concrete.


TRUCK MIXERS
STEEL CURB AND GUTTER FORMS
STEEL PAVING FORMS
PRECISION SUBGRADERS

BLAW-KNOX 'Package'... handle *any* concrete paving job!"

BLAW-KNOX PAVING SPREADERS

Like the other equipment in the "Complete Package", Blaw-Knox Paving Spreaders are designed for record-smashing production and high quality performance. By using the vibratory pan attachment on the Spreader, exceptionally uniform, dense concrete free from difficult finishing problems, can be obtained. This 20-25-ft. adjustable spreader, with the automatic transverse blade, can handle the maximum output of two 34-E paving mixers.

I'VE really increased the type of jobs I can handle by completing my Blaw-Knox "package" of concrete paving equipment, and so can you, to get ready for the big construction days ahead.

In the "Complete Package" you get *all* the equipment you need, from forms to finisher. You can use the entire set-up for the big jobs, or choose the units you need for whatever job comes up . . . roads, streets, airports, or even dams or bridges. And you can be sure of getting *all* the advantages of a "packaged" system . . . smooth, low-cost production-line operation, with each highly productive unit integrated with the others for big output at a steady, profitable pace.

You get a further profit pay-off in the *one-source* conveniences of a "Complete Package". . . . all your equipment from one responsible manufacturer vitally interested in your success, with only one financial contact, and backed by one construction-minded distributor organization working hand in glove with you to assure prompt, efficient service in parts and maintenance. One Blaw-Knox trained man can service *all* your "Complete Package" equipment! You can get the entire package on one order and in one shipment if you like, or choose the equipment you need *now,* then add the others as your needs increase.

Remember, when you have the Blaw-Knox "Complete Package", you can handle any concrete construction job faster, better and at the lower costs that assure profit.

BLAW-KNOX

BLAW-KNOX DIVISION of Blaw-Knox Company
Farmers Bank Bldg. • Pittsburgh 22, Pa.
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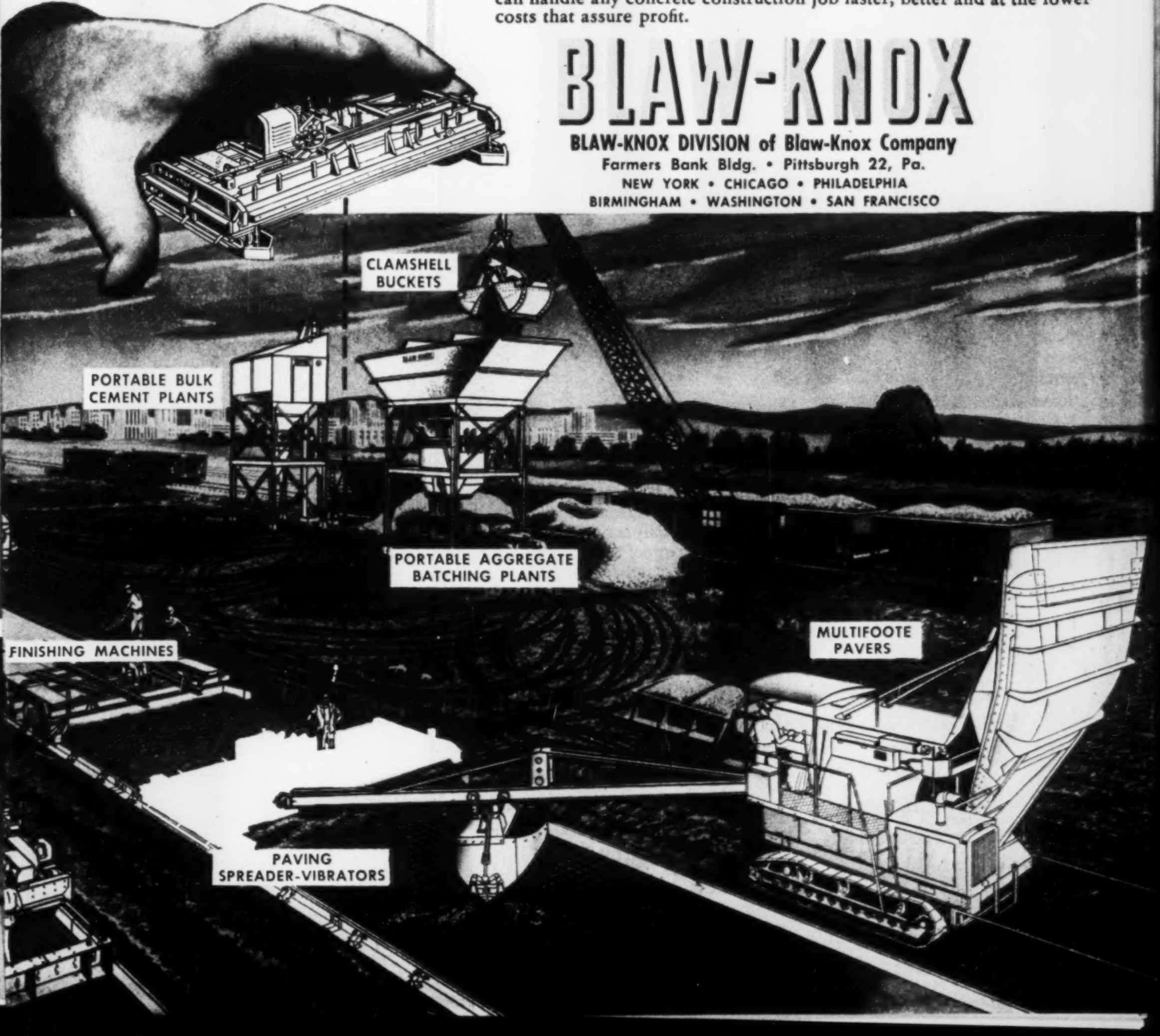
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PORTABLE BULK CEMENT PLANTS
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FINISHING MACHINES
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Angular variation:
less than one second!

Model No. 7014 with "A" standard. "U" type also available.
$575.00* complete with tripod, case and field equipment.

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See your dealer for full information on the complete David White line of Transits, Universal Level-Transits, Levels, Theodolites and engineering supplies. Or write for new Bulletin 1052 to David White Company, 315 W. Court Street, Milwaukee 12, Wisconsin.

**Price subject to change without notice.*

DAVID WHITE COMPANY

We offer the most expert REPAIR SERVICE on all makes, all types of instruments.

7241

READER COMMENT

Hold it?

Sir: In regard to the article on the lift slab collapse at Miami in your May 22 issue (p. 25), beg to advise as follows:

The writer, as a consulting engineer called in by the Institute of Inventive Research and the contractor, subsequent to the first trouble on this job, deprecates the publication of such information at this time.

In a couple of weeks, conclusions will be drawn on the most scientific basis and furnished the public.

In the meantime, I would ask your readers to reserve judgment as there is nothing the matter with this construction that cannot be corrected easily, rendering it as safe or safer than the ordinary method of construction by supporting forms.

Elwyn E. Seelye
Seelye Stevenson Value & Knecht
New York City

(Editor's note: Engineering News-Record feels that it is its function to report news of events as they occur, giving the best available information to its readers. If this journal waited until the engineers concerned had obtained all the answers, many events of significance to progress of civil engineering would go unrecorded. We shall be happy, of course, to receive the full report whenever it becomes available.)

Show safety in pictures

Sir: In a good many pictures used in magazines these days, both in the editorial and advertising pages, some of the important factors of safe working conditions are frequently omitted. This gives me the impression that safety is not so well considered as it should be.

For example, in your April 17 issue, page 3, a man is shown installing roof materials without the use of gloves. Also on page 6 is a picture of one of those very interesting earth compacting machines that jump up and down.

I note that the men who are operating the compactor are not wearing foot guards. Perhaps they do have safety shoes; but, if I were operating one of the jumping machines, I should certainly want to have more proper foot protection.

On page 49 two of the men pictured are properly wearing goggles, but two other men standing nearby and equally exposed are not. On page

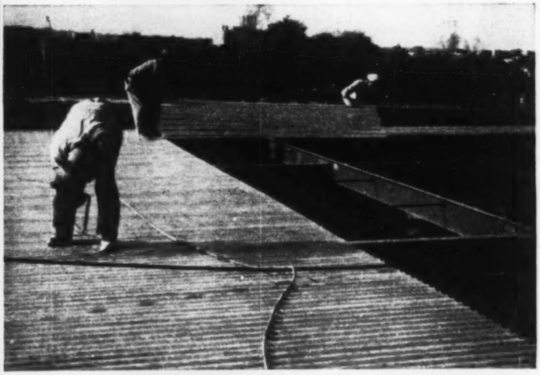
(*Continued on page* 14)

COFAR

. . . Combined reinforcement and form for concrete floors and roofs in a single product.

CORRUFORM

. . . the light-weight permanent steel form for concrete floors and roofs.



THEY'RE ALL IN THE FAMILY

Here are Four Granco Products for Your Needs—Pre-formed Steel to make your jobs stronger, better . . . faster

And "tough-temper" steel is the answer. Yes, high-strength, light-weight steel is one of the reasons that the Granco family of four building aids do a better job for you. For Granite City Steel, parent-company of Granco Steel Products Company, has developed a specialized steel to fit right in the building products picture.

Because it's manufactured from a low-carbon steel to begin with, Granco "tough-temper" does not require critical alloying to gain its high tensile strength. Instead, controlled cold-rolling, with strain hardening as the result, gives high and unusual physical properties. The structure of the steel itself actually changes . . . the crystalline elements realign . . . to produce a steel with a *minimum* yield point *above* 80,000 psi; and an ultimate of *over* 100,000 psi. This is *tough* steel!

Steels like this, fabricated into products like those illustrated on this page, mean more than marks on a blueprint. For construction people they mean simplified and more economical construction, savings in materials and labor. To your clients they mean better structures as an end-result.

We'll be glad to tell you more about any Granco product you are interested in, just write Department 11-5, you will get a speedy answer. For helping you is the most important part of our job. It's our way of saying "thanks" for specifying Granco.

TUFCOR

. . . the ideal long-span permanent steel base for light-weight insulating concrete.

GRANCO ROOF DECK

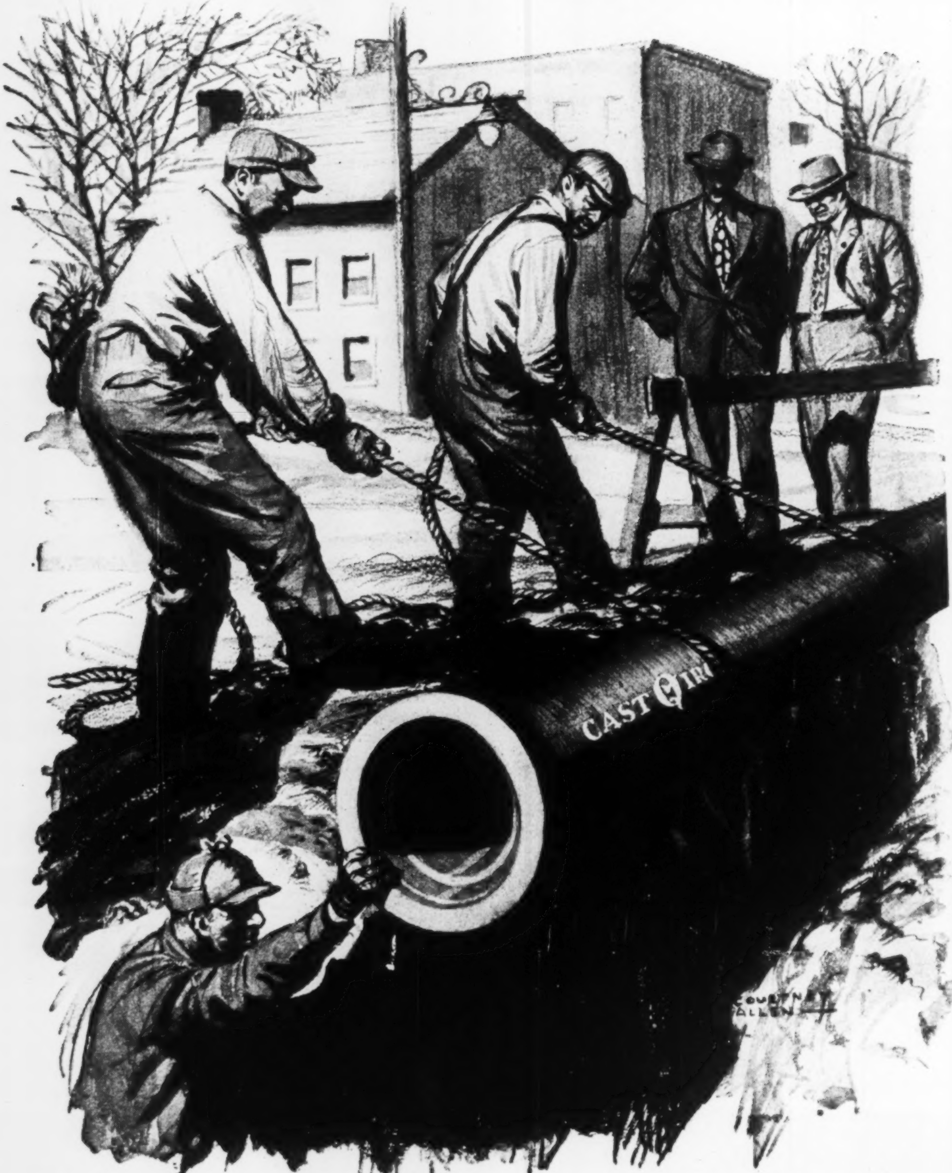
. . . the rotary-press formed flat-top roof-decking.

GRANCO STEEL PRODUCTS CO.

(Subsidiary of Granite City Steel Co.)
Granite City, Illinois

See our listing in Sweet's Catalog

Why they


CAST IR
COURTNEY ALLEN

call this pipe

*America's No.1 Tax Saver

Top Tax Saver is the cast iron pipe in the water distribution systems of cities and towns throughout America. Beyond question, long-lived cast iron pipe has saved, and today is saving taxpayers millions of dollars. Why?

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When you consider that over 95% of America's water distribution systems are constructed with long-lived cast iron pipe, can you doubt that it is *America's No. 1 Tax Saver?*

America's oldest functioning water main is in its 135th year of service in Philadelphia's distribution system. Cast iron, of course. Over 30 other cities have century-old cast iron mains in service.

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America's No.1 Tax Saver

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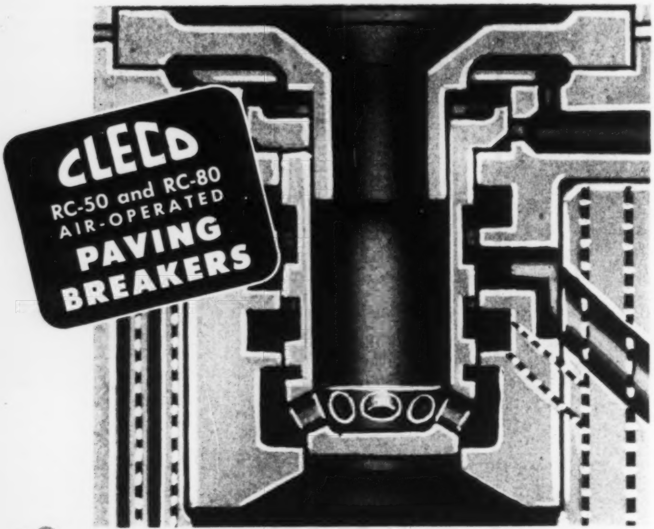


THIS VALVE MAKES THEM BETTER

The valve used in Cleco RC-50 and RC-80 Paving Breakers is similar to the type used in many large mining drills. Since it controls *both live air and exhaust* during power and return strokes, it gives Cleco Paving Breakers more sustained power, faster action, less recoil and longer life than other breakers in their classes.

Hard hitting and fast action **result because air in front of the piston is exhausted to atmosphere — through the valve — during entire power stroke. Live air — rather than pressure in front of piston — trips the Cleco valve for the return stroke.**

Less recoil **is a result of the valve action. Since air in back of piston is exhausted through valve during return stroke, avoiding recompression, less air is required to return the piston and recoil is reduced.**

Longer life and sustained power between repairs **is possible because valve action is independent of piston wear . . . a full stroke is assured even with a worn piston.**

Many contractors report that Cleco Paving Breakers hit harder and faster, have less recoil, produce more work per man-hour and cost less to maintain than any other tools in their classes.

Write us, and a Cleco field engineer will arrange for a demonstration on your job at your convenience.

CLECO AIR TOOLS GALLETT

CLECO DIVISION
of the REED ROLLER BIT COMPANY
5125 Clinton Drive Houston 20, Texas

3519

(*Continued from page* 10)

63, it might be that the men working on the clam shell bucket are in danger of falling debris. On page 122, the operators of the grinding machine are not wearing eye protection. I should imagine that there would be considerable exposure to heavy and gritty dust in this operation. And on page 125, the man operating the masonry drill is not wearing gloves, although I suspect that he should be.

Personal safety is an extremely important subject, and I believe that it would be proper to inspect very critically all photographs and illustrative material in both advertising and editorial parts of your magazine for compliance with recognized proper safe procedures.

My purpose in writing is that I feel a very real obligation to promote safety wherever I can.

C. F. Winans, Manager
Chemical Division
Koppers Company, Inc.
Pittsburgh

Want Alternate Bids

Sir: Your editorial in ENR March 20, motivated by the declared opposition to alternate bids by AGC and ASCE, expresses regret that the system of alternate bids on Corps of Engineers work has not received "a more sympathetic trial." We voice our support of the alternate bidding.

Alternate bids on some projects have been submitted on structures differing so widely from basic plans that qualified judgment for award of contract is impossible. Entirely separate from these alternate-type structures is the practice of alternate bids on proprietary methods of construction of buildings virtually identical with the government plans, but by law prevented from inclusion as patented construction.

Recently, alternate bids have been offered for Cofar construction on both Army Barracks and Air Men's Dormitories, (light-gage steel decking with reinforcing steel attached, which eliminates the need for wood forms and replaces normal positive reinforcing bars), with speedier construction and a decrease in "A"-Product steel requirements. On a recent project of Air Force Dormitories, savings of $5,000 per 25,000-sq. ft. dormitory were offered the government with this alternate.

The above is one positive example of beneficial results obtainable with the alternate-bid system under the Corps of Engineers procedure.

Bengt F. Friberg
Vice President and General Manager
Granco Steel Products Co.
Granite City, Ill.

Using the RIGHT Wire Rope for the Job?

You'll get longer service life from wire rope if you do. Here are some points to keep in mind when you're selecting wire rope for any equipment . . .

STRENGTH

Don't send a boy to do a man's job. Make sure the wire rope you order has enough strength to take care of the maximum load—*plus* a necessary safety factor.

FLEXIBILITY

If your ropes undergo repeated bending over small sheaves, you'll need a flexible rope with maximum resistance to bending fatigue. Two things increase flexibility—smaller wires and preforming.

ABRASION RESISTANCE

Lang lay ropes, when properly installed, and constructions with large outer wires will help extend the service life of drag lines and other wire ropes that are subject to severe abrasive wear.

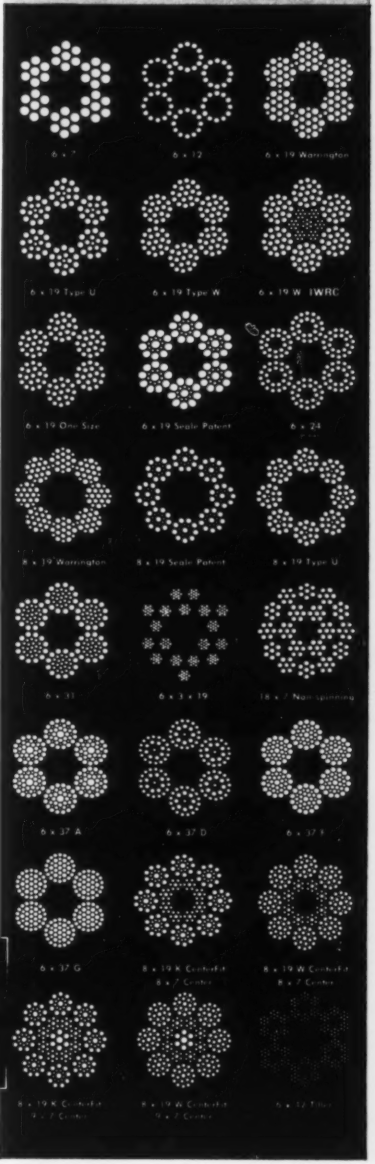
RESISTANCE TO CRUSHING

An independent wire rope center gives outside strands the support necessary to withstand crushing and distortion—large outer wires help spread the load over a greater area.

When you're looking for ways to cut operating costs, why not enlist the help of your nearest J&L Wire Rope representative? He'll help you select the *right* balance of these wire rope properties to get the longest service life on your specific type of equipment and operating condition.

Through years of research and actual operation in the field, J&L has developed a complete line of wire rope sizes and constructions. You'll find it profitable to cash in *NOW* on J&L experience and manufacturing know-how.

Select a Wire Rope that Fits Your Equipment Needs


6 x 7
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6 x 19 Warrington
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6 x 19 Type W
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6 x 19 One Size
6 x 19 Seale Patent
6 x 24
8 x 19 Warrington
8 x 19 Seale Patent
8 x 19 Type U
6 x 31
6 x 3 x 19
18 x 7 Non-spinning
6 x 37 A
6 x 37 D
6 x 37 F
6 x 37 G
8 x 19 K Centerfit 8 x 7 Center
8 x 19 W Centerfit 8 x 7 Center
8 x 19 K Centerfit 9 x 7 Center
8 x 19 W Centerfit 9 x 7 Center
6 x 37 Filler

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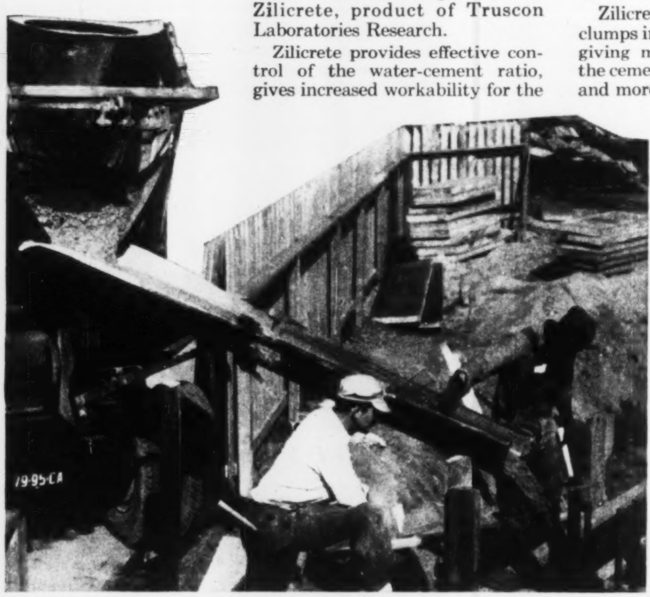
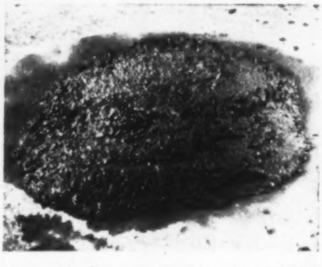
For a more uniform and free-flowing concrete mix—a mix that can be worked readily into intricate forms and reinforcing—insist on Zilicrete, product of Truscon Laboratories Research.

Zilicrete provides effective control of the water-cement ratio, gives increased workability for the same amount of water, or equal workability and greater strength with less water. Saves time and saves money.

Zilicrete breaks up the cement clumps in the mix (deflocculation), giving more complete contact of the cement particles with the water and more complete hydration.



This stiff concrete mix is too dry for practical workability on the job.



Same water/cement ratio mix, with ZILICRETE added. Result—material that is free flowing, slips easily down chutes, works readily around reinforcing and possesses excellent mobility.

ADVANTAGES OF TRUSCON ZILICRETE

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Construction record forecast

New construction spending in 1952 is expected to set a record of over $32 billion, according to the Building Materials Division, U. S. Department of Commerce and the U. S. Labor Department's Bureau of Labor Statistics.

This will be about $1 billion more than the 1951 total, due mainly to increased expenditures for military and atomic energy facilities. Private investment of over $21 billion in new construction will vary little from last year's total, but public spending of nearly $11 billion will represent an increase of $16 billion, 17% over 1951.

Anticipated volume of new construction in 1952 is based on the premise: (1) That no major interruption will occur in the production of steel and copper products during the rest of this year, and (2) that partial relaxation of Regulation X will take place. Supplies of all non-metallic building materials are expected to be adequate, and the same will be true for construction labor in most localities

Estimated New Construction Activity in The United States
Estimate for 1951 and Forecast for 1952
(Millions of Dollars)

Type of Construction	1951	1952	Percent Change
Total of Construction	**$31,025**	**$32,175**	**+4**
Private Construction	**21,684**	**21,225**	**−2**
Residential building (nonfarm)	**10,973**	**10,850**	**−1**
New dwelling units	**9,849**	**9,700**	**−2**
Additions and alterations	**934**	**975**	**+4**
Nonhousekeeping	**190**	**175**	**−8**
Nonresidential building (nonfarm)	**5,152**	**4,680**	**−9**
Industrial	**2,117**	**2,200**	**+4**
Commercial	**1,371**	**1,000**	**−27**
Warehouses, office and loft Buildings	**544**	**425**	**−22**
Stores, restaurants and garages	**827**	**575**	**−30**
Other nonresidential building	**1,664**	**1,480**	**−11**
Religious	**452**	**340**	**−25**
Educational	**345**	**360**	**+4**
Social and recreational	**164**	**115**	**−30**
Hospital and institutional	**419**	**400**	**−5**
Miscellaneous	**284**	**265**	**−7**
Farm construction	**1,800**	**1,700**	**−6**
Public utilities	**3,695**	**3,925**	**+6**
Railroads	**399**	**400**	**—**
Telephone and telegraph	**487**	**550**	**+13**
Other public utilities	**2,809**	**2,975**	**+6**
All other private	**64**	**70**	**+9**
Public Construction	**9,341**	**10,950**	**+17**
Residential building	**595**	**725**	**+22**
Nonresidential building	**3,471**	**4,000**	**+15**
Industrial	**958**	**1,650**	**+72**
Educational	**1,531**	**1,550**	**+1**
Hospital and institutional	**498**	**450**	**−10**
Other nonresidential building	**484**	**350**	**−28**
Military and Naval facilities	**1,019**	**1,900**	**+86**
Highways	**2,400**	**2,500**	**+4**
Sewer and water	**706**	**700**	**−1**
Miscellaneous public-service enterprises	**213**	**200**	**−6**
Conservation and development	**860**	**850**	**−1**
All other public	**77**	**75**	**−3**

SELL YOUR SCRAP

to keep steel production up

Rising steel production depends on an increasing flow of scrap. Your scrap is needed!

About 1,000 pounds of iron and steel scrap are required to produce one ton of steel. Now, with steel production greatly expanded to meet military and civilian requirements, more scrap is essential. Every pound is important if steel mills are to keep running at capacity.

You can help by checking your plants, maintenance yards, shops, and construction jobs for all kinds of iron and steel scrap. Collect worn-out or obsolete parts and equipment—tools, truck and equipment parts, cable, bolts—then call your scrap dealer.

But don't stop there. Organize a regular collection system to keep the scrap moving.

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THE CONSTRUCTION WEEK

INDUSTRIAL BUILDING SHIFT—Small businesses are supposed to get a break from here on out in the granting of tax benefits for building new plants for defense purposes, according to Defense Production Administration and Small Defense Plants Administration. Idea is to fix a definite share of each expansion program that should go to small business—and give small outfits 30 days in which to apply for certificates. Only after the 30-day period will others get a shot. But the new procedure won't mean too much; it comes a couple of years too late. Amortization tax benefits have been given to almost $19 billion worth of plant of this month. There's not much left.

ALUMINUM HODGEPODGE—Samuel W. Anderson, "aluminum czar" of the Defense Production Administration, has lowered his estimates of aluminum needs for the defense program. He now feels a stockpile of 5 billion lb (compared with a previous estimate of 8 billion lb) will be adequate. It should be built up: (1) by purchase of aluminum from Canada, and (2) by further expansion of domestic production. He told aluminum producers at a meeting in Washington last week that an option to purchase 400 million lb of aluminum annually from the Aluminum Company of Canada had been permitted to lapse, but recommended negotiation of an agreement to purchase 340-350 million lb. He recommended construction of new domestic facilities to produce another 140 million lb annually, instead of the 280-million-lb goal he suggested earlier. The producers opposed guaranteeing the Canadian firm a market in the U. S. for aluminum when they have no guarantee they will be able to sell all output from their own defense expansion. The market already is softening fast. Domestic expansion was countered by Aluminum Company of America, which repeated its perennial offer to build a $400-million plant near Skagway, Alaska, to produce 800 million lb annually. Alcoa's offer was shelved, as it had been in the past. DPA continues its search for a new producer to build the additional capacity —and its plans on aluminum continue in a hodgepodge.

NEXT ROUND COMING UP—The California State Supreme Court has refused a rehearing on its decision that the City of Los Angeles must fulfill its contract with the City Housing Authority for a $110-million, 10,000-unit housing program. The city is appealing to the U. S. Supreme Court but the action is not expected until the court reconvenes next October. Meanwhile, pro and anti public housing forces are battling for the votes of Los Angeles citizens who will get a chance to approve or disapprove the program on the June 3 Primary ballot. The vote will have no legal effect. The City Council has asked the federal housing authorities to abide by it, but so far they have given no indication they will.

IN THIS ISSUE—Battle over bid-shopping heard by congressional group (p. 21) . . . New irrigation system opens in Columbia Basin (p. 24) . . . Engineers transform Okinawa into air bastion (p. 27) . . . Permanent injunction granted against picketing at Levitt project (p. 28) . . . Boston market district gets under way (p. 33) . . . Barge with legs becomes pier (p. 44) . . . Slab costs cut with paper-formed hollows (p. 46) . . . No time to spare in dam repair (p. 50) . . . Building planned for TV-radio broadcasting (p. 54) . . . What charges will industry accept for industrial waste disposal? (p. 58) . . . Raymond Concrete Pile has extensive international relations (p. 62) . . . Commercial building comes back to life (p. 84) . . . Editorial (p. 112).

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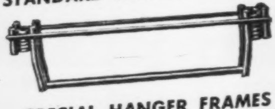
SPECIAL HANGER FRAMES

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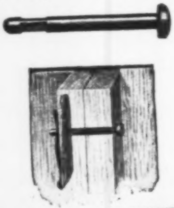
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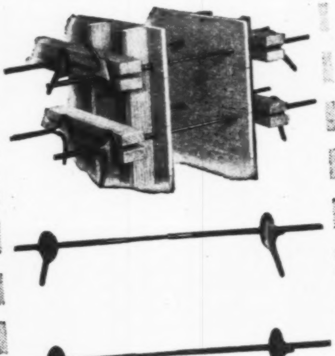
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Contractors score bid-shopping bill

General contractors last week uncorked a blistering two-day attack on proposed legislation to change contract practice on federal public works.

Some 30 leading construction men from across the country converged on Washington, appeared before the Kilgore subcommittee of the Senate Judiciary Committee, and hammered away in opposition to S. 2907. When they were through, chances seemed slim for passage of the legislation this session.

The bill has the backing of specialty contractors. It drew their resounding support when hearings on it first opened (ENR May 8, p. 22). It would set up procedures requiring general contractors to use subcontractors for specialty work—on both lump sum and cost-plus-fixed-fee contracts—unless the general contractor proves to the government agency that he is qualified to do all the specialty work involved in the job.

Specialty contractors claimed the bill is needed to stop cutthroat-bid-shopping and bid-peddling—where the general contractor only is benefited, and both the specialty contractor and the public lose out.

• Fresh inning—Last week the general contractors marshalled some of their best talent to refute these claims. Their testimony drummed the same warnings:

It will cost the government more money, hamper the authority and ability of the general contractor to carry out the job, handicap the small subcontractor as against the larger subs and will create more difficulties and unnecessary friction in the industry.

C. P. Street of McDevitt and Street Co., Charlotte, N. C., national vice president of Associated General Contractors, summarized the general contractor's opposition.

"The whole tendency of S. 2907," he said, "will be to freeze out small subcontractors and new subcontractors just coming into business. This will definitely tend to restrict competition and to direct work into the hands of large, old, well-financed subcontractors, and will definitely tend to increase the cost to the federal agency of construction work to be awarded."

Other points that were strongly attacked included:

• Separation of contracts—The general contractors agreed that this bill does require separation of contracts, but charged that any recognition of a subcontractor by the contracting agency lowers the authority and ability of the general contractor to fulfill contract.

C. P. Street, vice president of the Associated General Contractors, summarized the association's opposition to the bill.

• Naming subcontractors in a bid—The generals declared this is wholly impractical because subcontractors cannot be depended to submit firm and full bids in time for the opening of general bids.

• Diminishing prime contractor's authority—Alan Johnstone of the Charles H. Tompkins Co., Washington,

George F. Cook, president of the Associated General Contractors of Minnesota, said the bill would make bid-shopping the general rule instead of preventing it.

Maury I. Poze, Del E. Webb Construction Co., Phoenix, Ariz., charged the bill discriminates against the small subcontractors under its $5,000 limitation provision.

William Salter, Stewart & Williams, Augusta, Maine, added his objections to those voiced by representatives of general contractors from coast to coast.

R. M. Dixon (left) and F. S. Oldt, secretary and chairman, respectively, of Texas Associated General Contractors' Executive Council. "Our objection is that not all executive agencies of the government have qualified personnel to accurately estimate construction costs and enactment of this bill would, we believe, mean the establishing of a new division in each bureau involved, with subsequent greater expenditures of tax money."

D. C., said, "To the extent that there is direct connection between the government and the subcontractor either by direct responsibility the one to, or for the other, the general contractor cannot function."

Others said that the bill might require a general contractor to work with a subcontractor he cannot rely on.

• **Freezing out of small subcontractors**—Small subs would be hard hit because of their inability to prove their capabilities to the satisfaction of the general contractor at a time when he is under pressure to fulfill the new filing requirements for the contracts. This would give an advantage to the old, well-established subs. A general contractor, only after he has gotten the award, has time to satisfy himself as to the abilities of many small subs who otherwise would not get work.

Alan Johnstone, Charles H. Tompkins Co., Washington, D. C. "Nor is it appropriate that special rules be made in the law to prefer one group of enterprisers over another; and certainly not at the expense of another."

• **Added cost to government**—The general contractors claim the complexities of the construction industry are such that the bill's provisions could only result in more red tape and frustration for the government and the contractors.

James M. Jarvis, Jarvis-Courtney Corp., Clarksburg, W. Va., said, "If the government makes his bids more difficult to prepare, limits his choice of subcontractors and his right to hire or not to hire subcontractors as his judgment indicates, it will only increase his costs and in turn the cost of construction work purchased by the government."

• **Elsewhere**—While the contractors were battling the Senate bill, eight companion bills—with important differences—were introduced in the House. The House bills, all identical, eliminated many of the objections the general contractors raised against S. 2907.

For instance, House bill HR 7819 and the seven others would:

. . . Eliminate the requirement that the federal agency estimate the cost of the mechanical specialty work in the prime contract.

. . . Eliminate all reference to specific mechanical specialties, whereas the Senate referred only to electrical, heating, piping and air-conditioning, and plumbing contractors.

. . . Extend the fair bid procedures to include non-mechanical specialty contractors, and not just mechanical specialties as does the Senate bill.

. . . Requires that subcontractors be required to follow the same provisions with their own subs as the general contractors are required to do.

Outlook for action on S. 2907 is uncertain. Chairman Kilgore was considering another day's hearing to give specialty contractors a chance to rebut the general contractors' testimony. On the House bills, the Judiciary Committee had not yet decided whether hearings would be held.

The legislation seems stymied for this session. Congress is already heading into an end-of-the-session log jam. Congress will recess for the July political conventions, and only "must" legislation can be sure of going through. Controversial bills—such as S. 2907—aren't likely to become law at a time when politics takes over.

E. V. Pugh, vice president of George A. Fuller Co., New York, N. Y.: "Most important of all, is the fact that the government holds the general contractor alone responsible for completion of the job within the contract time and that he should not be bound by any such rigid restriction in the selection of his subcontractors."

Congressional Roundup

VA housing shakeup looms

The Veterans Administration compliance inspection system came under scrutiny this week when a House committee began an investigation of GI housing in the Washington area.

The investigation was prompted by complaints from hundreds of GIs who bought homes that they claimed fell short of specifications.

Rep. Olin Teague, chairman of the select committee to investigate education, training and the loan guaranty program under the GI Bill, said his committee is not concerned with shortcomings of the builders but rather will concern itself with what happened to the VA system that is supposed to protect the GI against abuses by the builder.

Meanwhile, Rep. Teague has introduced a bill, HR 7656 (GI benefits for Korean veterans) which would tighten VA supervision of GI housing. Some of the provisions include: (1) A one-year warranty, against defective construction; (2) authority for VA to refuse to appraise a house where the builder has been in trouble before; (3) authority for VA to control construction standards and planning of developments, rather than being restricted just to the house itself. This would give VA a say in selection of neighborhood, landscaping, etc.; (4) authority to refuse a loan where lender has kept improper records.

I. Senate action . . .

. . . Passed and sent to the House with bewildering rapidity, a bill to increase the authority for government assistance to housing by nearly $1.4 billion, mostly in critical defense areas. It provides authorization for $900 million of mortgage purchases and commitments by the Federal National Mortgage Association; $400 million of additional guarantees of mortgage insurance by the Federal Housing Administration; $50 million as an appropriation for defense housing; $40 million toward the financing of community facilities; and $5 million as an outright appropriation for defense housing in Alaska.

II. House action . . .

. . . Passed emergency appropriation of $35 million for Army-civil functions for flood relief in Mississippi and Missouri River basins.

. . . House due to take up, on Tuesday of this week, the Federal Aid to Highway Bill, calling for $550 million for federal aid for fiscal 1954 and a like amount for 1955. Proponents are confident of passage, without substantial change, although a fight is expected over Sec. 7 which puts the Commerce Department and the Bureau of Public Roads in the business of promoting and seeking nationwide compliance with the action program of the President's Highway Safety Conference.

Meanwhile, the full Senate Public Works Committee approved a total of $1,589 million for federal highway aid for the two years 1954-55. The Senate version provides $600 million in funds to be matched by the states, against the $550 million approved by the House, in addition it would provide $129 million in other funds that would be spread over several years. And $130 million each year in unmatched funds.

III. Committee action . . .

. . . In favorably reporting an extension of economic controls, the Senate Banking Committee exempted from wage controls, compensation paid to professional engineers employed in a professional capacity by an engineer or firm of engineers, and exempted wages paid to similarly employed architects and accountants.

. . . Secretary of Agriculture Brannan got an assist in his fight with the Army Engineers on flood control when a subcommittee of the House agriculture Committee favorably reported HR 7868. The bill would authorize the Secretary of Agriculture to cooperate with the states and local agencies in planning and carrying out of upstream flood-control work.

Investigate steel crash

Engineers are investigating an accident in which 17 girders, weighing a total of 200 tons and forming a 96-ft stand of a traffic overpass, fell 40 ft to the street.

The overpass, under construction at Sullivan Square, Charlestown, Massachusetts, is being built for the Massachusetts Department of Public Works at an estimated cost of $6.5 million. General contractor for the job is M. De Matteo Construction Co., of Quincy, Massachusetts. Subcontractor for the steel work is the Lehigh Construction Co., of Allentown, Pennsylvania.

The end of the stand which fell was supported by rockers to provide for expansion and contraction. Preliminary estimate of the damage by the De Matteo Company is $10,000. It is not expected to have much effect on the scheduled Sept. 15 completion date.

. . . Bailey subcommittee of House Education and Labor Committee is about ready to report out a bill providing federal aid for school construction, to house pupils who will enter school next fall. The committee ended hearings on five bills several weeks ago and is now writing its own bill to provide for the $80-million deficit in funds for next fall's crop of pupils.

. . . House Armed Services Committee continued hearings on Military Public Works Bill, HR 7694, which asks an authorization of $3 billion for defense projects. Hearings are moving slowly, with the Air Force still on the stand and the Army and Navy yet to be heard. Hearings are expected to run two or three weeks longer.

Massachusetts to build cross-state toll highway

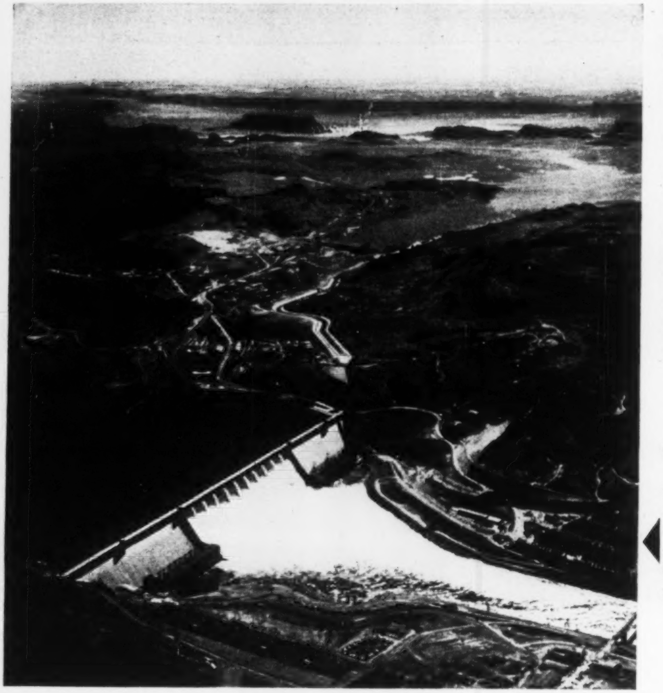
Construction of an east-west toll highway across Massachusetts from the outskirts of Boston to the New York State line, a distance of 130 miles, is authorized in a bill passed by both houses of the Massachusetts Legislature on May 21. Approval of the bill by Governor Paul A. Dever is assured.

The new highway is to start in the southwestern part of Boston and run parallel to and south of the Worcester Turnpike, the main highway to Connecticut and the New York metropolitan region, which is badly overloaded. South of Worcester it will connect with the newly constructed Route 15 which leads to the Connecticut parkway system. From there the toll road will continue west passing north of Springfield and continuing to a connection with the Berkshire branch of the New York State Thruway in West Stockbridge.

The Massachusetts Department of Public Works, which recommended construction of the toll highway to the legislature early this year (ENR Feb. 28, p. 96), proposes that it have eight 12-ft lanes from Boston to the Springfield by-pass. On the eight-lane section, the four outer lanes would be separated from the four central lanes by malls and would be for autos, leaving the center lanes for truck and bus traffic.

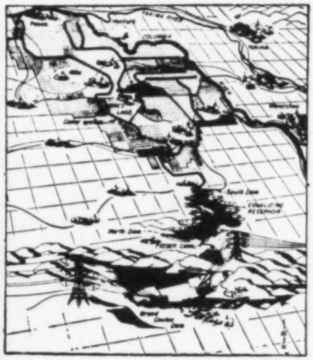
The department estimates that such a highway will cost $150 million and can be financed over a 30-year period with tolls ranging from 1¢ a mile for passenger vehicles to 4.8¢ a mile for heavy trucks.

The bill provides that the highway is to be built by the Massachusetts Department of Public Works.



Water starts here . . .

The Grand Coulee pumping plant lifts irrigation water 280 ft to start it on its way to Columbia Basin lands. The natural equalizing reservoir formed by the Grand Coulee extends to the left background.



Columbia Basin irrigation feted

This week eastern Washington is watching a Hollywood style celebration signaling the first full year's irrigation of Columbia Basin project lands with water pumped from behind Grand Coulee Dam.

There's good justification for a party—it's been almost 19 full years (and $450 million) since construction started on the first phases of the work by the U. S. Bureau of Reclamation.

The project tops a movie press agent's fondest dreams: It involves the world's largest concrete dam (Grand Coulee—10.3 million cu yd), with the world's largest power plant (1.97 million kw) and pumping plant (15,000 cfs ultimate capacity); the irrigation phase is also the biggest—1 million acres of land to be irrigated in a total area of 2.5 million acres (it will be many years before all of that—or even half of it—will be under irrigation.)

• Farm-in-a-day—Climax of the celebration is being reached today (May 29) with construction near Moses Lake of a complete farm-in-a-day and "symbolic" delivery of first irrigation water. Other events in the Columbia Basin Water Festival include the Tri-City Aqua-Rama at Pasco, the Grand Coulee Cavalcade at Soap Lake, a "Little World's Fair" at Ephrata and a veterans' preference drawing for available public lands.

The celebration is prompted by the fact that canals, laterals and pumping plants are now ready to irrigate 66,000 acres of formerly arid wasteland. (Up until early this year the goal was 87,000 acres ready in 1952.) Work on the canals and lateral distribution systems will continue so that an additional 50 to 60,000 acres can be irrigated each year until about half the million-acre total is under ditch.

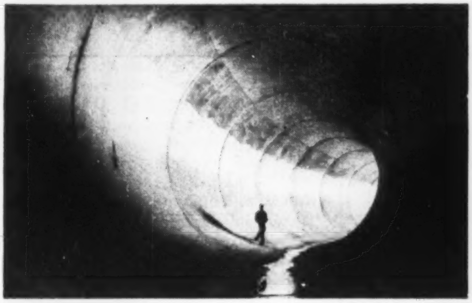
It may then be a good many years before the rest is developed. Part of it is just across the Columbia River from the Atomic Energy Commission's Hanford works and has been restricted as a security measure. (This part is just north of the east-west stretch of the Columbia as shown on the map.) A strip along the eastern edge of the area is being withheld from development because dry wheat farming has been eminently successful there in the past ten years. But conditions restricting development in these areas could change in the future. In such case additional acreages could be made available for irrigation in a relatively short time.

• Symbol—Delivery of first water on May 29 is purely symbolic. At Pasco, 5,500 acres have been irrigated since 1948 by pumping directly from the Columbia River. A similar 1,182-acre development at Burbank has been irrigated since 1950 with water pumped from the Snake River. But neither of these involve water pumped from behind Grand Coulee Dam and it's first irrigation from there that is being celebrated. The Pasco unit will ultimately be tied in with Grand Coulee pumping via the Potholes East Canal.

The pumps at Grand Coulee were officially started on June 14, 1951 (ENR June 28, 1951, p. 27). After many weeks' operation filling the dead space in the Grand Coulee equalizing reservoir, canal priming and testing started late in 1951. During this period some water was made available to farmers on an intermittent basis. So

Travels here . . . A dozen discharge pipes lift Grand Coulee water to canal.

The main canal is one of the largest irrigation canals ever built, having a 13,200-cfs capacity.



Soap Lake Siphon comprises a 25-ft inside diameter cut-and-cover conduit 2½ mi long.

Ends here . . . Development farms test irrigation methods.

actually first irrigation was last year and this year's irrigation started well before the May 29 symbolic delivery.

Bureau of Reclamation officials estimate that only half the 920 farms on the 66,000 initial acres will use water this year. And these farmers will irrigate only about half their acreage.

This year is officially termed a priming and testing year for these 66,000 acres. A 10-year development period starts next year with water charges at an increasing rate each year until 1963 when the 40-year repayment period starts. This same sequence will be followed for other land as it is brought under irrigation.

• **How it started**—Development of the Columbia Basin area for irrigation has long history. The land was open for homesteading in the 1890s and, during a wet cycle, farmers were prosperous on a dry farming basis. As late as 1902, homesteaders raised 40 bushels of wheat to an acre. But a dry cycle came; the land returned to its arid state and farmers deserted their land.

Several schemes were dreamed up to irrigate this wasteland. The most favored one centered around damming the Columbia River and pumping water into the Ice Age Grand Coulee. It was favored because power generation could partially subsidize the irrigation works. This plan received grass-roots support, particularly from Rufus Woods of the newspaper Wenatchee Daily World.

The Corps of Engineers' original 308-page report included detailed consideration of the scheme. Final impetus to actually start work came during the early 30's when the federal government searched for large-scale public works projects to stimulate the nation's economy. Frank A. Banks supervised construction for the Bureau of Reclamation from laying out the first center line on Sept. 9, 1933, until he retired on Sept. 30, 1950.

Earlier ENR technical articles on features of the Columbia Basin irrigation work

Columbia Basin projects starts this year
ENR May 16, 1946, vol. p. 780
Test-linings placed in small canals
ENR July 22, 1948, p. 74
Record-size pump plant at Coulee Dam
ENR Nov. 11, 1948, p. 80
Slip forms build Soap Lake Siphon
ENR Dec. 22, 1949, p. 36
Asphalt lines Columbia Basin canals
ENR Feb. 28, 1952, p. 39

Grand Coulee Dam was finished on Dec. 31, 1951, just in time to play a vital part in World War II. First power generators were on-the-line in March, 1941; more were added as rapidly as possible including some borrowed "for the duration" from yet-to-be-completed Shasta Dam. The left powerhouse was almost up to full capacity before the war's end. The plant supplied power, so it is said, for half of the aluminum produced in the U. S. during the war. It also fed the plutonium plant at Hanford.

Irrigation construction was just ready to start in 1941 but had to be postponed for obvious reasons. Thus, this week's festivities are five years later than they might have been.

• **Major features**—The significant works of the project's irrigation phase have been described in earlier ENGINEERING NEWS-RECORD articles (see box). The pumping plant starts water to the farms. It will ultimately have twelve pumps lifting water 280 ft. with a total capacity of 15,000 cfs. Each pump has a 65,000-hp motor powering it. Most of the irrigation pumping will be done in the spring and early summer when there is a surplus of both water and power.

The pumped water flows through a

Irrigation . . .

1.8-mi feeder canal to the 27-mi-long Grand Coulee equalizing reservoir. From here a series of major canals fan out over the basin area.

Largest structure on the canal system is the 2½-mi-long, 25-ft inside diameter Soap Lake Siphon.

Of the four earth-filled dams on the irrigation works, largest is located halfway down the system. The 9,190,000-cu yd O'Sullivan Dam (named after James O'Sullivan, one of the project's strongest early day supporters) captures return water as well as water wasted to it from the West Canal. This water is then distributed by canals on down the system.

• Other construction—The project will be responsible for millions more of construction. In fact, establishment of farms on the first 500,000 acres to be irrigated will require construction estimated at more than $200 million. That's broken down into $90,373,000 for farm buildings, $80 million for town dwellings, $17,760,000 for schools, $12,870,000 for roads and $7,085,000 for water systems.

A large proportion of the necessary construction will be carried out during the next five to ten years.

The construction costs given above are based on 1948 estimates and thus are likely to be on the low side. Road work, for example, was figured at $1,000 a mile. The State Highway Department awarded contracts in March for the first 30 miles of roads at a price of about $3,200 a mile. All roads will not be up to state standards but costs are likely to exceed $1,000 a mile. Only 26 miles of arterial road had been graded as of April 1 but 250 miles needed to serve the first 923 farm units are expected to be built or under contract by the end of this year.

The 1951 state legislature authorized the issuance of $5 million in bonds to aid Grant, Franklin and Adams counties in their road construction programs, the counties to repay the state as they develop.

The road construction program calls for the expenditure of $2,121,000 this year and an additional $1,686,000 by 1954. An estimated $252,000 will be spent on domestic water systems this year, at the rate of $2,100 per farm, and another $917,700 by 1954.

School construction, where state aid also is necessary, involves $1,380,000 this year and an additional $2,965,000 by 1954. New population is being developed too. The Basin's three, Quincy, Ephrata and Moses Lake—has increased in the past 10 years from 1,600 to 8,000 including a 50% increase since 1950. Future population of these three towns will number between 12,500 and 22,000 with the total basin population near 90,000 according to reliable estimates. In planning the project, land was set aside for the possible development of six new communities.

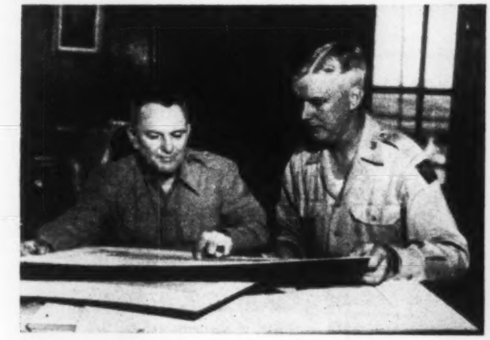
• Farmers busy—Each of the many hundred of new farmers is spending between $3,000 and $20,000 in preparation for the first water. Prior to planting irrigated crops, they must clear and level the land, costing in some areas up to $100 per acre, install irrigation equipment and build adequate farm buildings and homes.

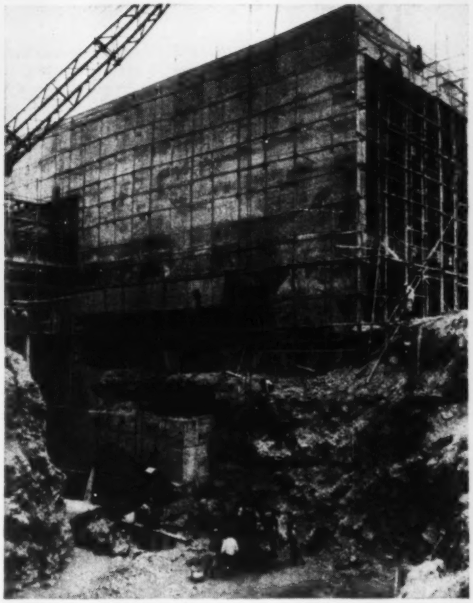
Irrigated farming is necessarily intensified farming, requiring larger amounts of manpower and farm machinery per acre than dry farming. This is one reason for the relatively small average unit farm size of about 100 acres. The demand for this machinery as well as development construction makes the basin one of the most important markets in the Pacific Northwest. An estimated 23,523 m bd. ft. of lumber will be required this year alone, and an additional 43,723 m by 1954. An estimated 540 tractors will be sold this year, an additional 730 by 1954. Farming of the first 500,000 acres will require the expenditure of an estimated $10 million for household equipment and furniture, and $8 million for livestock.

This year's farm production in the basin will be small, about one-fourth of normal for the 66,000 acres receiving water in May. When 500,000 acres are irrigated in 1959, however, they are expected to add 12% to the state's farm production. Total value of agricultural products from the 500,000 acres is expected to reach $60 million annually, based on 1949 prices. It will not be unusual for farmers to net from $10,000 to $15,000 a year once into full production.

Several food processors are surveying prospects for canning and freezing plants in the basin. A $7-million beet sugar refinery has been announced for Moses Lake. In addition, the communities are keenly interested in industrial development to supplement the agricultural base.

CHESAPEAKE STEELWORK COMPLETED—Hoisting of the final span into place last week completed major steel erection work on the 4-mile Chesapeake Bay Bridge near Anapolis (ENR Sept. 27, 1951, p. 43). The span, a simple truss connecting a cantilever arm with the main-channel suspension bridge, was picked off barges and raised by four wire rope falls, as shown in the above photo of the corresponding truss on the other side of the suspension bridge. Bethlehem Steel Co. is the erection contractor. J. E. Greiner, of Baltimore, designed the bridge, which will link Maryland's Eastern Shore area with the state's mainland.





IN CHARGE OF CONSTRUCTION ON OKINAWA are Brig. Gen. David A. D. Ogden (left above), head of engineering work in the Far East Command, and Col. Thomas A. Lane, Okinawa District Engineer. (Right) Among their projects: this 45,000-kw powerhouse under construction at Machinato. (Wide World photos.)

Okinawa becomes bastion of Pacific air defense

Okinawa was nicknamed "The Rock" by the Americans who wrested it from the Japanese in a 91-day campaign during World War II—the last and bloodiest battle of the Pacific.

Today "The Rock" has taken on new meaning. Okinawa is undergoing a multi-million-dollar construction program that is changing it into one of the most powerful U. S. advance bases.

It is the largest island of the Ryukyu chain which stretches in a 790-mi arc from the southern coast of Japan to the seas off Formosa. It lies midway between Japan and the Philippines, and is less than 400 miles from Shanghai and the shores of Red China. From it, U. S. bombers can dominate every potential target area in east Asia.

Since the Communists invaded South Korea, "The Rock" has been one of the main B-29 bases in support of the United Nations forces on the Korean battlefront.

- **Engineers at work**—Brigadier General David A. D. Ogden of Newark, N. J., head of all engineering work in the Far East Command, and Col. Thomas A. Lane of Roslandale, Mass., Okinawa District Engineer, are supervising the construction as the program of rebuilding Okinawa into a military bastion rolls into advanced phases.

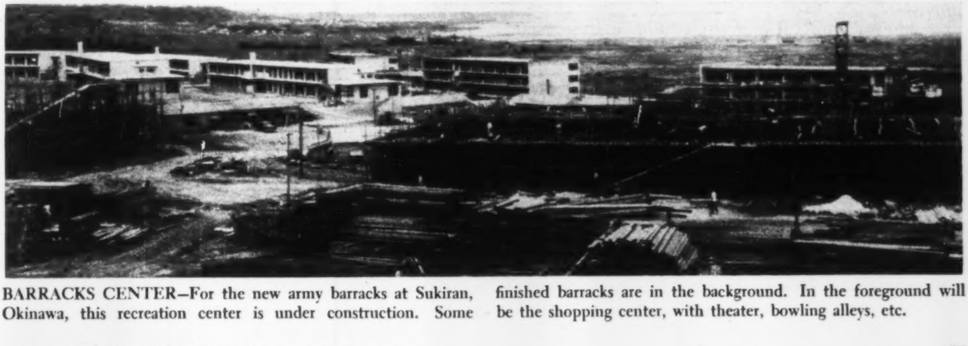
During World War II the island was devastated. Its economy was shattered, and its population of some 600,000 natives was destitute. Rebuilding from the ruins started on a large scale in 1949. Port facilities were extensively rehabilitated. Airbase facilities were constructed.

Today the whole southern half of the 67-mi long island is one big building project.

In addition to plane facilities, U. S. military men are getting new living quarters. Modern concrete barracks are replacing Quonset huts. Built to hold 165 men each, they are widely spaced to provide the best light and air. Each unit has its own kitchen and recreation room. Homes for military men with families are going up in suburban housing development style.

Among the major auxiliary projects under way is construction of a 45,000-kw power house at Machinato. It will supply all the electricity for the military installation and could be used for civilian purposes. All new buildings are permanent structures made of concrete to withstand the raging typhoons (average 40 a year) that hit the island from May to November.

Engineers are transforming Okinawa, into the "hot rock" of the U. S. Pacific defense system.



BARRACKS CENTER—For the new army barracks at Sukiran, Okinawa, this recreation center is under construction. Some finished barracks are in the background. In the foreground will be the shopping center, with theater, bowling alleys, etc.

VIOLENCE like this, which occurred two weeks ago at Levittown, was ended by the permanent injunction granted to William J. Levitt and Sons, by Judge Keller. (Wide World photo.)

Levittown under injunction as picketing continues

Judge Hiram H. Keller in the Bucks County Court at Doylestown, Pa., on May 20 issued a permanent injunction restricting union picketing at the Levittown homes project.

Between two and five pickets will be permitted at each of the 20 locations under the agreement entered into by the Building and Construction Trades Council of Philadelphia and six trade unions whose pickets halted the work on May 10.

Violence and disorder broke out last week at the project when stones were thrown at the cars of workers attempting to enter the project grounds. Work was halted from May 10 to May 19.

After the first outbreak of disorder 40 State Police armed with riot sticks were assigned to the area about the project to see that employees could get into the project if they wanted to. The State Police stayed on at the project but the force was to be reduced in size and ultimately withdrawn.

The permanent injunction also forbids intimidation of workers and property damage or threats. Workers cannot be followed from their jobs.

• More agreements—The Building and Construction Trades Council announced on May 20 that it had signed an agreement with the R. M. Luff Co., of Willow Grove, Pa., general contractor building the sewage disposal plant at Levittown.

M. Herbert Syme, attorney for the council, said that under the agreement Luff will only engage subcontractors hiring union workers. Pickets were withdrawn from the sewer project but they are still marching elsewhere in the big development.

• Strike goes on—The Trades Council and the six unions announced that they will continue to picket the project indefinitely.

Scores of sympathizers continue to appear each morning to lend their moral support to the pickets and take their turns on the picket lines.

All are from other construction projects including the Fairless plant of the U. S. Steel Corp., under construction at Morrisville and from the nearby Danherst Corp., development at Fairless Hills.

Jurisdictional dispute leads to violence

One jurisdictional dispute was settled but another caused violence during the month. The disputes indicated that the ever-recurring problem is still not under complete control.

The desire of some construction trades to keep as much work as possible under their control, led to trouble at an atomic energy plant in Ohio.

A jurisdictional dispute in Pennsylvania led to a strike which ended only when ordered by the AFL board set up to adjudicate such disputes.

• Form fight—Violence broke out last week at the Atomic Energy Commission plant at Fernald, Ohio, in a jurisdictional labor dispute which reportedly had been building up tension in recent weeks.

Two men were reported to have suffered injuries in battles which the police of the plant's security branch quelled, before the arrival of a large number of county officers who had been dispatched there upon reports of a "general riot".

Following the violence, 1,000 AFL laborers employed there were laid off for the remainder of the day, but were told to report back at the regular starting time the next day.

C. L. Karl, plant manager, referred to the incident as a "violent dispute" between members of the Hod Carriers & Building Laborers Union, Local 265, and the Ohio Valley Carpenters District Council.

The dispute was reportedly over whether laborers or carpenters would dismantle wooden forms into which concrete is poured.

• Fairless plant—Construction work on the new $400-million Fairless Works of U. S. Steel Corp. in Pennsylvania was resumed fully, two weeks ago, following a four-day halt caused by a jurisdictional strike. The strikers were members of Local 68, International Association of Bridge and Structural Iron Workers, AFL. It was the third such stoppage in recent months at the partly built plant.

The strike was called off late on May 9. The 8,500 workers began returning to the job the following morning but full-speed construction was not reached until Monday the 12th.

A spokesman for the 20 contractors on the project said orders to end the strike came from the National Board of Jurisdictional Awards of the Building and Construction Trades Department, AFL. The Board, headed by John T. Dunlap, Harvard University professor, directed Leo MacDonald, iron workers' organizer to call off pickets at the plant's four gates.

The strike involved disputes between the iron workers and half-a-dozen construction trades unions over which union was entitled to install certain machinery.

(*Continued on page 30*)

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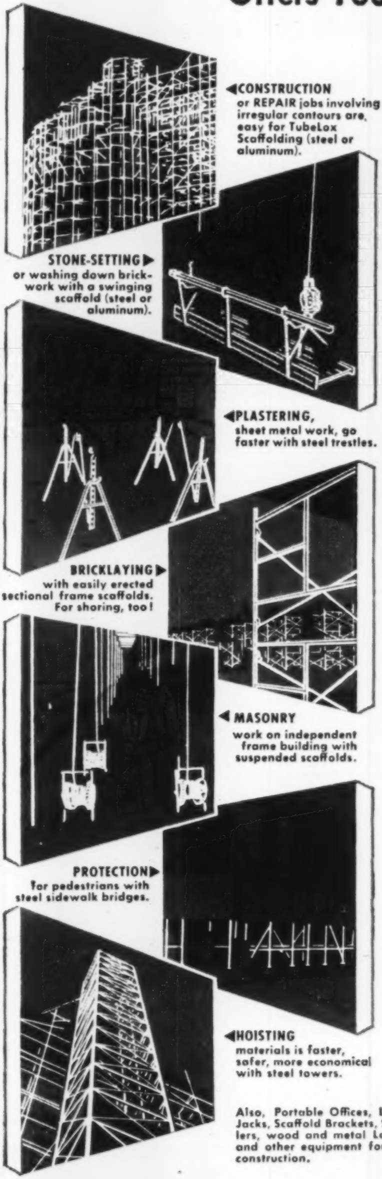

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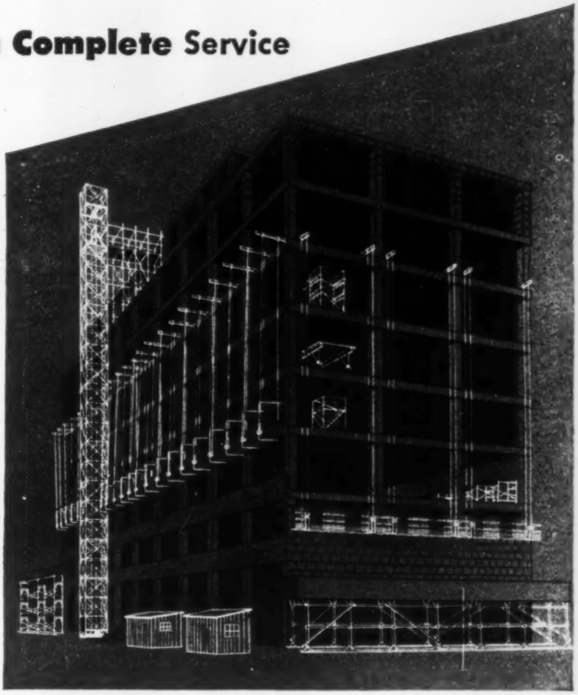

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Under some circumstances

Employee must cross picket line

Two courts separated by more than 2,000 mi made coincidental decisions this month concerning refusal of workers to cross picket lines.

Utah's State Supreme Court decided that 648 smeltermen who refused to cross picket lines set up by striking switchmen were not entitled to Unemployment Compensation benefits.

Almost across the country the U. S. Circuit Court of Appeals upheld an employer who fired a chauffeur-routeman who refused to cross a picket line.

At the same time Circuit Judge William I. O'Neill in Milwaukee, Wis., ruled that it is not illegal for union pickets to cause other crafts to leave a job on which non-union men are employed.

• **Utah case**—The Utah decisions written by Chief Justice James H. Wolfe, clearly overruled the position taken by Utah labor leaders regarding the rights of strike-affected union members to state compensation. The ruling struck all the more forcibly in view of prevailing belief in some quarters that the court and its chief justice had been "pro-labor" during the last decade.

In upholding the Utah State Industrial Commission for its refusal to grant Unemployment Compensation to the smeltermen, Justice Wolfe noted that non-strikers "left work voluntarily without good cause."

"It is immaterial," Justice Wolfe wrote, "whether the claimant (for compensation) refuses to cross the picket line because of his own personal conviction . . . or from his belief that his own union officials' decison should be obeyed.

"In ether case this is a decision which calls for the exercise of the claimant's volition and upon which rests his eligibility for benefits. He may need to balance, in that exercise of volition, a loss of benefits against the obloquy which a refusal to honor the picket line of an outside union draw upon him."

• **New York case**—Reversing the stand of the National Labor Relations Board the U. S. Court, by a 2-to-1 decision, held that the Rockaway News Supply Co. had the right to dismiss Charles Waugh for refusing to pass through a picket line of striking typographical workers.

After a hearing, the NLRB found his employer guilty of an unfair labor practice, and ordered the company to reinstate Waugh with back pay. The Board petitioned the Court for enforcement of the order.

In the majority opinion, written by Judge Albert B. Maris and concurred in by Judge Harrie B. Chase, the Court said:

"An employee is of course free to exercise his right to refuse to cross a picket line when he is on his own time, but he is not free to exercise the right during his working time in violation of his employer's working rules by refusing to perform that part of his regular duties which requires him to cross the picket line.

"To hold otherwise would be to permit an employee unilaterally to dictate the terms of his employment, which it is well settled he may not do."

Shutdown no lockout

In a recent decision, the Utah Supreme Court clarified the difference between a shutdown and a lockout. The justices overruled an Industrial Commission's finding that granted compensation to members of six AFL craft unions following a retaliatory shutdown by Associated General Contractors members during an AFL strike against two contracting firms in July, 1950.

Although the strike hit only a portion of the building industry the court held the AGC to be within its rights in stopping all jobs through a shutdown as a retaliatory measure during industry-wide negotiations. The court ruled, in effect, that the difference between a strike (where Utah workers are not entitled to compensation), and a lockout (where they are entitled to compensation) is dependent on individual conditions prevailing. Non-strikers in the AGC case were held to be "members of the group which gained a wage raise due to the strike . . . and parties to the scheme or plan to foment it."

In a special concurrence in this decision, Justice J. Allen Crockett noted:

"Where a multi-unit employer group is bound together to bargain collectively with labor unions the following principles should be squarely approved by this court:

"If a work stoppage is brought about by action of the employers in putting economic pressure on the employees, the latter are eligible for Unemployment Compensation benefits.

"If a work stoppage occurs as a result of a strike by any of the employees for the benefit of all, aimed at all the employers, then all of the employees are ineligible for compensation."

• **Picketing ruled legal**—In the Milwaukee case, the judge rejected a petition of the Jonas Co., an electrical contractor, for a temporary injunction restraining members of the AFL Electrical Workers Union, Local 494, from picketing a construction job.

As a result of the picketing, members of other AFL building trades refused to cross the picket line and the general contractor cancelled his contract with Jonas.

What then is the rule on picketing? Here is some background on the latest decisions:

Usually a labor contract will specify that a worker will not be required to go through a union picket line. In such cases, the worker is protected by the contract against any discipline. The only way Taft-Hartley could figure in such a situation is if the picketing is illegal, possibly constituting a secondary boycott, in which case action might be taken against the picketing union. Picketing situations in construction usually involve secondary boycotts of picketing a contractor as "unfair" for not using union labor. This is illegal. The last work on secondary boycotts in construction can be found in the four Supreme Court decisions of last June (ENR June 14, 1951 p. 77).

Roughly the rule is this:

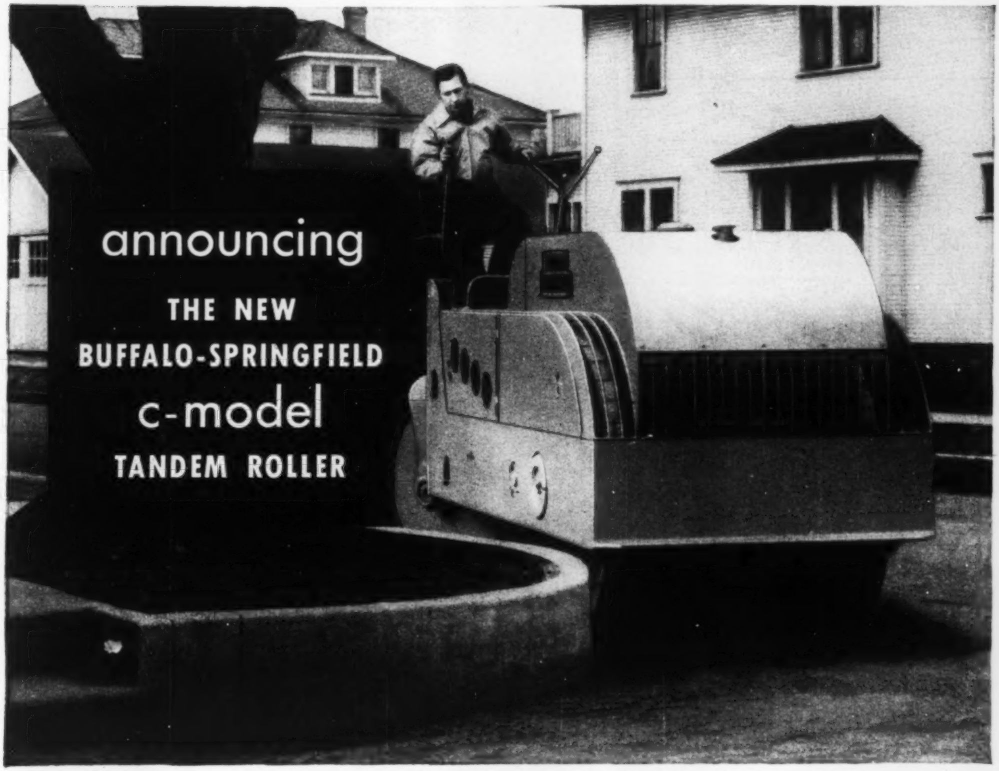
Picketing is legal where it is aimed at the particular contractor with whom the union has a dispute, but not where it is aimed at another contractor to induce him not to do business with the first contractor.

Also, under the recent Conway Express decision of the Court of Appeals, it is not illegal for a contractor to voluntarily agree with a union not to do business with some other contractor—known as the so-called "Hot Cargo" clause.

Senate passes amendment on union shop elections

As expected, the Taft-Humphrey Bill to exempt the construction industry from Taft-Hartley elections and to modify union shop restrictions passed the Senate easily this week. The vote on S. 1973 was unanimous.

Chances of the amendment getting through Congress are not good.



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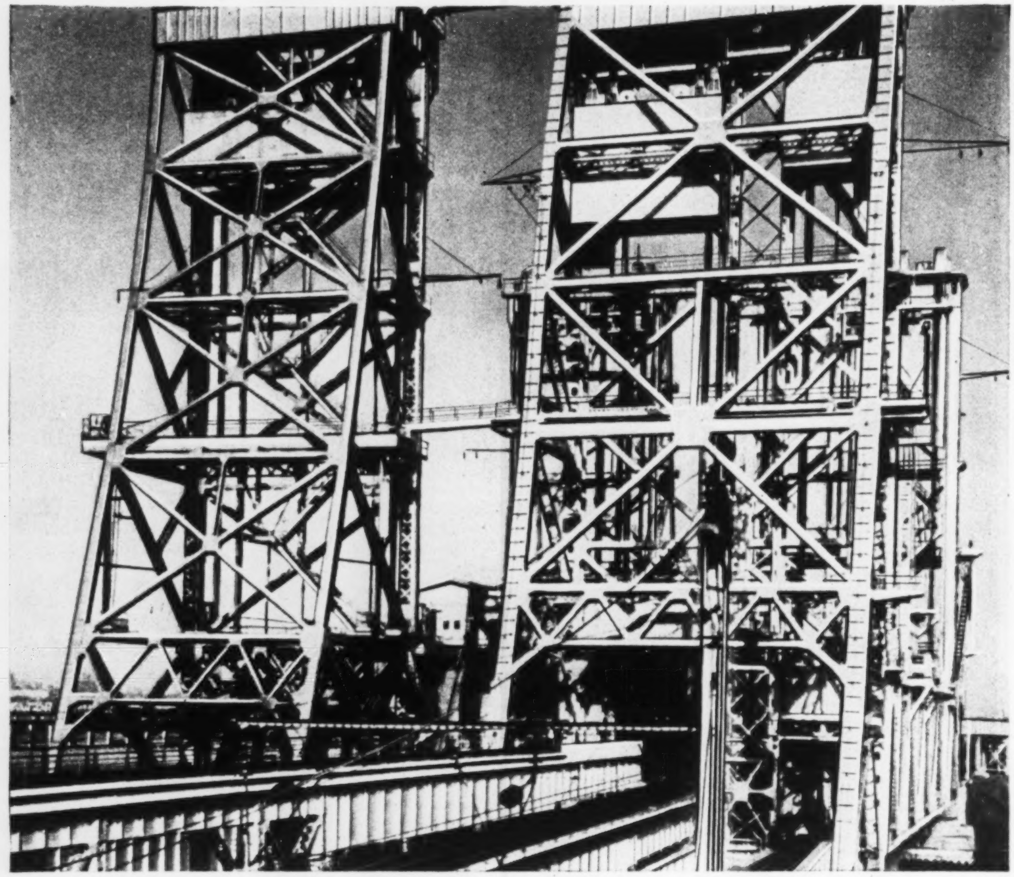

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SIGNING THE AGREEMENT, under the master plan are: Arthur Sullivan (seated left), Sidney A. Lang (seated right). Standing (left to right) John H. Gardiner, rental agent of the authority and David R. Pokross, attorney for Columbia Packing Co.

First large unit for Boston market is to be erected by meat packer

Arthur V. Sullivan, chairman of the Massachusetts Market Authority and Sidney A. Lang, president of Columbia Packing Co., recently signed an agreement calling for immediate construction of one of the most efficient processing plants in the country.

The $750,000 plant is a step forward in the development of the authority's $26-million wholesale food market in the South Bay area of Boston.

The new market is intended to replace historic but outmoded Faneuil Hall and the Quincy market district.

• **New terminal**—The new market district will be composed of three major areas. Section one—the north area on the north side of Southampton street—is mostly undeveloped property of the New Haven Railroad. The north area will have a fruit, vegetable, poultry and egg farmer's section, two buildings of the meat section, the administration center and maintenance group.

- Section two on the south side of Southampton street and running through to Massachusetts Ave., will be known as the "Meat Triangle."
- Section three, located between Southampton Street and Massachusetts Ave., is intersected by the Dorchester Creek drainage canal. This area is intended for future expansion.

The South Bay site, at Southampton and Massachusetts Ave., was selected out of 13 surveyed by the U. S. Department of Agriculture in Greater Boston. Most were rejected because of insufficient acreage or uneconomic location.

• **Moved by highway**—The Faneuil Hall and Quincy district is being forced to move because of the new $50-million Boston Central Highway, now under construction.

Those affected by the highway have been given a January 1 deadline for removal by the Public Works Department of Massachusetts.

The Columbia Packing Company, first major processor to relocate its facilities in the South End, is now erecting a building 55,000 sq ft in area. The building will be completed by the end of this year and will be in the area described as the "Meat Triangle." Also under construction on land immediately adjacent to the market authority's tract is a new plant of the New England Provision Co., Inc., another "displaced" firm.

• **Attracting marketmen**—Until recently, marketmen had looked with some disfavor on the new project because they said the rents were too high. But a short time ago, the chairman announced a new and lower scale of rents. Reductions ranged from 30% in the meat section to 46% for concessions in the Administration building. Since then, 24 wholesale merchants, mostly meat dealers, have signed rentals calling for a total of $250,000 a year.

The lower rentals were made possible by two factors.

One of these was a change in construction plans based on the findings of the New York City engineering firm of Coverdale and Colpitts. The engineers were engaged at the request of the authority's financial counsel, Hornblower & Weeks, after the authority became convinced that few Boston market tenants had any intention of moving to the new site.

Typical square foot annual rental rates were cut from an original estimate of $230-250 to $166-169.

Construction cost estimates were reduced from an original $18 million to $16 million; the original estimate of 400 tenants has been reduced to 285.

Sullivan emphasized that the main parts of the original plan—called the world's most modern market—will be retained.

The other factor was a very favorable "sliding scale" tax agreement between the authority and the city of Boston.

Under this agreement the authority will pay taxes on an assessed valuation of $4.5 million during the first five years of the project from 1953 to 1957 inclusive.

For the next ten years the assessment will be increased to $6,750,000 and after that $9 million for a period of 15 years.

• **Land**—The market authority has 166.3 acres under option from the New Haven Railroad for $1.5 million—appraisal value $2 million. It will buy 8.4 acres owned by the city and state at an appraisal price of $119,000 and 21.2 acres divided into 16 privately owned parcels at an appraised value of $856,000.

Eventually it is hoped that the Market Terminal in South Boston and the Regional Market in Cambridge will be located in the new terminal.

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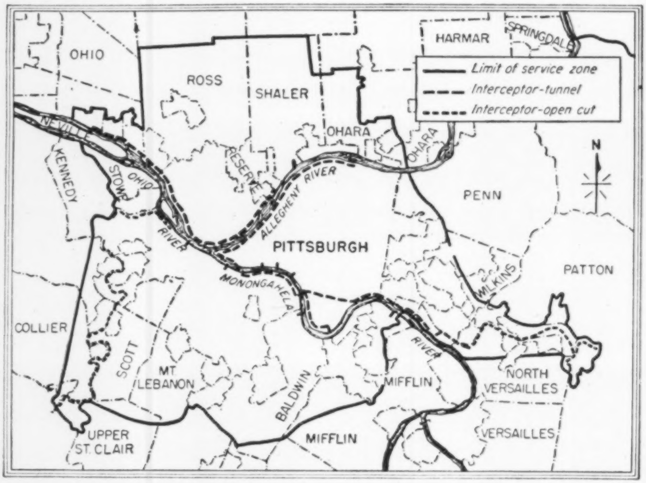


LIMITS OF SERVICE ZONE recently extended to include O'Hara, Blawnox and Verona showing the many districts encompassed by the work.

Pittsburgh's river clean-up slowed

The fight against water pollution in Pittsburgh's three rivers is a year behind schedule and there is no prospect of swimming or fishing there for at least six years.

That was the picture reported this week by John F. Laboon chairman of the Allegheny County Sanitary Authority.

Laboon says the six-year-old authority is a good 12 months behind in drawing up detailed plans and specifications for a $60-million sewage treatment system for Pittsburgh and 64 other municipalities in the area.

The job was supposed to have been done by Jan. 1, 1952. Now, more than four months after the deadline, Laboon estimates his work is about one-third completed and will be finished sometime next year.

Planning for $35-million worth of construction is being done by the authority. Planning for the remaining $25-million worth has been delegated to the Boston engineering firm of Metcalf and Eddy. Plans and specifications for about $20.5 million worth of work is completed. Of that total Metcalf and Eddy have accounted for $11.5 million and the authority for about $9 million.

The completed planning covers $8.5 million worth of planning for a 10½ ft dia tunnel from the proposed treatment plant at McKees Rocks to the point in Pittsburgh where the Allegheny and Monongahela Rivers converge to form the Ohio River.

About half the $12-million planning has been for the sewage treatment plant. About $5-million worth of planning has been finished for tunnels and piping along the line of Chartiers Creek. Another $2.5 million in planning has been finished for sewage lines following the general course of Turtle Creek.

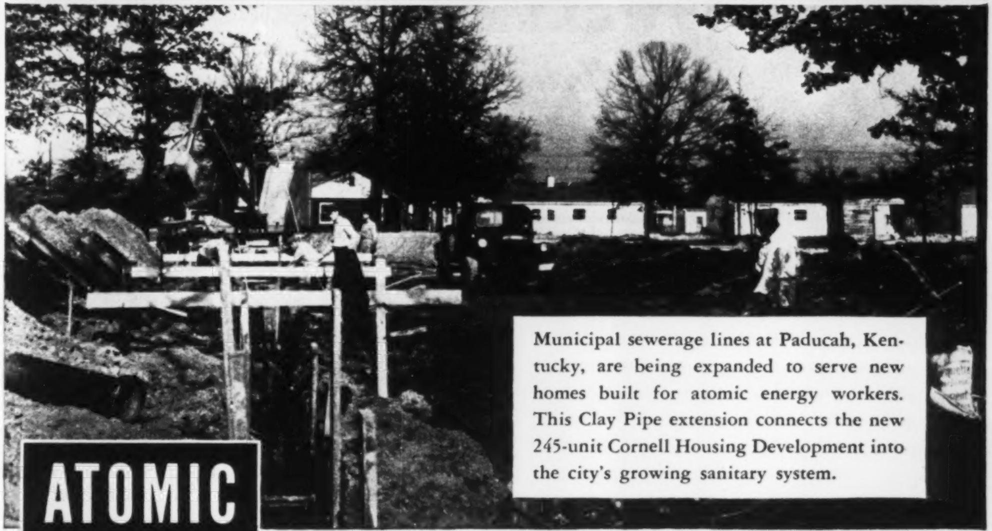
• Finished and unfinished plans—There will be some 1,500 engineering drawings and huge stacks of specification books on which bids from about 28 contractors are contemplated—adding up to two-thirds of the whole job.

Laboon says it will take another year to finish the planning; another year to let contracts and get construction started; three years for construction; and a year, after completion, for the rivers to clear up to the point where swimming is safe and fish will live.

• Time a 'wastin'—Laboon gave several reasons why the project is behind schedule. First of all, he blames the national shortage of engineers. He has a staff of 12 engineers in his office and 8 more working in swing teams. Laboon estimates a staff of 100 engineers would have enabled him to wind up the work on time. But there just aren't 100 qualified engineers to be had.

Laboon says the six years were used in getting organized and making sur-

(Continued on page 36)



CLAY PIPE—*ESSENTIAL* ⋆ *ECONOMICAL* ⋆ *EVERLASTING*

Municipal sewerage lines at Paducah, Kentucky, are being expanded to serve new homes built for atomic energy workers. This Clay Pipe extension connects the new 245-unit Cornell Housing Development into the city's growing sanitary system.

ATOMIC CENTER

EXPANDS CLAY PIPE SEWERAGE FACILITIES

Once-peaceful Paducah, now swarming under an influx of atomic energy workers which is expected to double the city's population, is meeting its new sanitary sewerage needs with Vitrified Clay Pipe.

Thousands of feet of Clay Pipe are being installed in one of the largest expansion programs ever undertaken in the state of Kentucky. Plans call for a total expenditure of $2.5 million.

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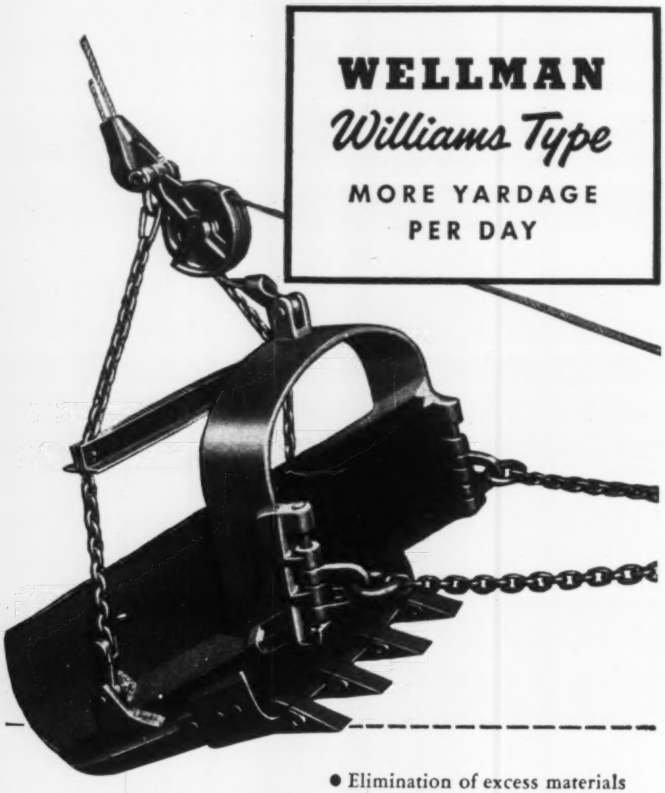
Rapid City, S. D. (Air Force Base)	54,000 ft.
Orlando City, Fla. (Air Force Base)	74,000 ft.
Tucson, Ariz. (Air Force Base)	440,000 ft.
Morrisville, Pa. (New Steel Defense Plant)	300,000 ft.
Rantoul, Ill. (Chanute Field)	158,000 ft.

C-152-4



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veys and winning the co-operation of the 64 communities.

The 64 municipalities represent about 65% of the communities in Allegheny County which have directives from the state to do something about their sewage. Twenty-nine other communities have septic tanks.

The completed system will handle only sewage originating in Allegheny County. It can do nothing about pollution already in the Allegheny and Monogahela Rivers when they reach Pittsburgh. The worst of the pollution already in the rivers is acid coal mine drainage.

A few communities lining the two rivers, however, already have sewage-treatment systems or are proceeding to build them.

Seattle takes first step in fighting air pollution

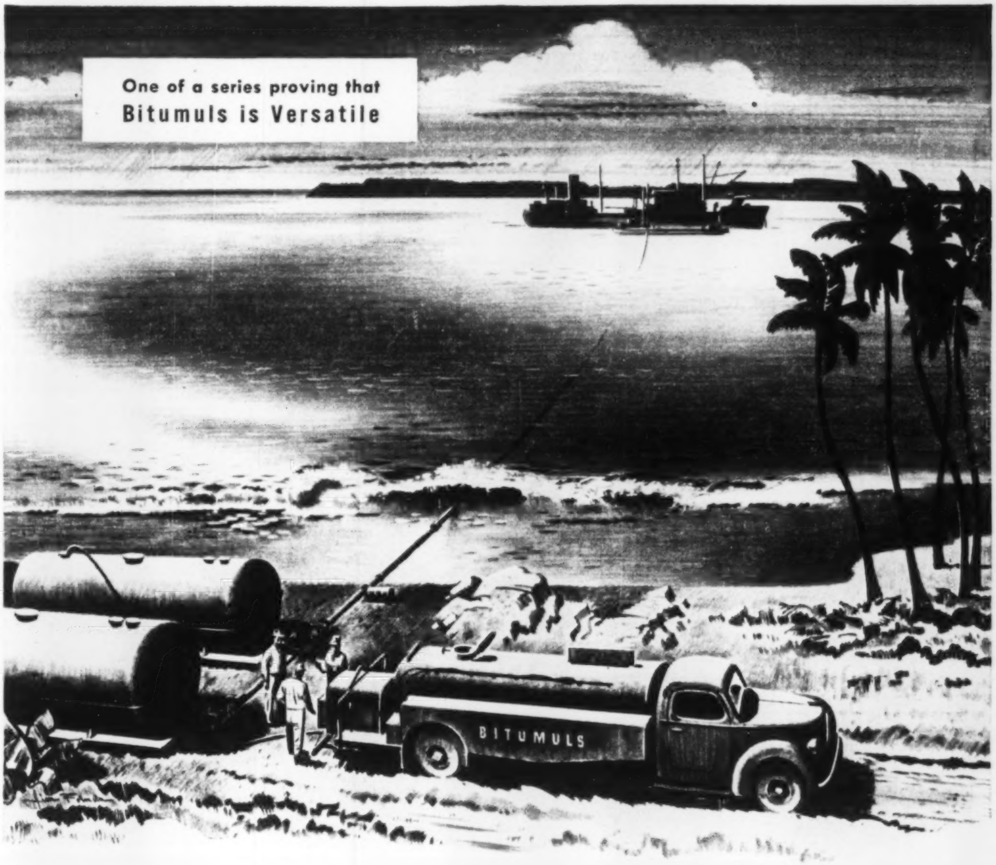
A dual program of education and legal controls to solve the air-pollution problem at Seattle, Wash., has been recommended to the Seattle City Council in a report prepared for the city engineering department by the University of Washington.

The investigators who conducted the two-year study found that "The principal cause of an air-pollution problem is the general lack of concern on the part of industrial-plant owners." They found that "settled solids" averaging 27.5 tons to the square mile settle on Seattle in a year as compared to 26.1 tons in Los Angeles, 27.2 tons for Cincinnati, 19.5 tons for Rochester, N. Y., 49 tons for Chicago and 48.8 tons for Detroit. The concentration in Seattle's industrial district reaches 53.1 tons to the square mile.

The university committee, of which Prof. F. B. Farquharson is chairman, recommended that the city council first adopt an ordinance establishing a Division of Air-Pollution Control "in an appropriate city department." This agency would ascertain which plants were responsible for smoke, fumes and dust, and require appropriate remedial action.

The investigators found the city responsible for unnecessary smoke at its three burning dumps and at its asphalt plant. Incinerators should be installed at the burning dumps, the report recommends. Many public schools also violate accepted smoke standards, the investigators found, and it was suggested that the University of Washington should "set an example by taking care of its own

(*Continued on page 39*)



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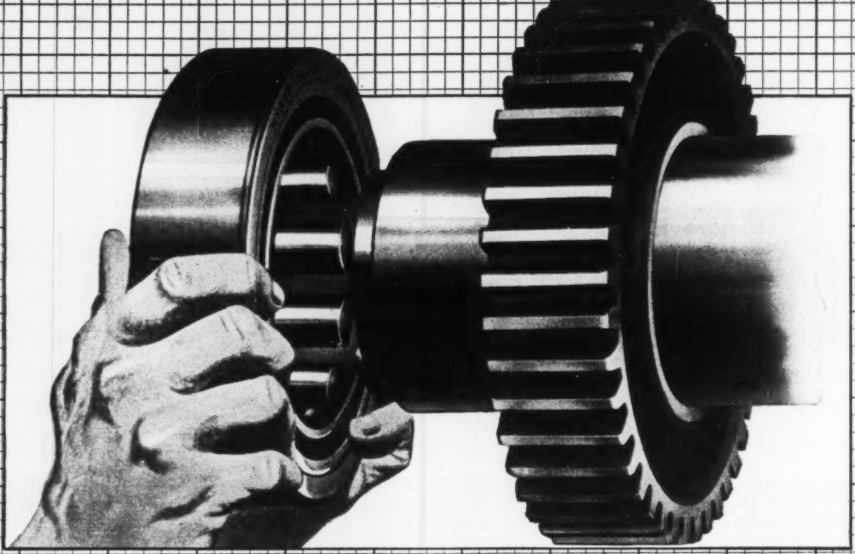

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The confidence in Hyatt bearings that has developed among construction machinery users is a result of their own year-in year-out experience with machines and equipment that have their complement of these dependable bearings. Hyatt Bearings Division, General Motors Corporation, Harrison, New Jersey.

HYATT ROLLER BEARINGS

smoke-pollution problem" at its coal-burning power plant.

"Seattle definitely has its smog problem which is increasing in severity with each new industrial plant," the report says. Smog conditions are frequently caused by a blanket of warm air which prevents smoke, dust and industrial gases from being blown away, said Prof. Richard G. Tyler, who wrote the report.

Parking problem attacked by various methods

The troublesome parking problem was still under attack by many cities around the nation. Some sought to solve the problem by organizing parking areas, some by building underground garages and some by ordinance requiring builders to provide parking space with each new building they erect.

Here is what Jacksonville, Fla., is doing about it:

The city has formally approved a plan to provide an uptown waterfront parking area for 1896 automobiles.

The plan calls for installation of stalls along the river front. The project will cost $3.1 million to be financed by the sale of 30-year bonds to bear 3¼% interest.

Reynolds, Smith & Hills, engineers for the city, will review the project as to final details and costs. The $3.1 million includes: $1.5 million for construction, $800,000 land acquisition, $150,000 electric submarine cables, $200,000 bridge ramps, $183,000 interest during construction, and the remainder for other expenses.

It has been estimated that the project will produce about $217,000 annual revenue from parking fees. These fees will run from 25¢ for one hour to 75¢ for more than 11 hours. A flat fee of $10 monthly will be charged to permanent customers of the parking area.

• **Underground Garages**—Mayor Carl W. Rich, of Cincinnati, Ohio, asked the City Council to examine the feasibility of an underground garage beneath Government Square similar to the one under Pershing Square in Los Angeles.

City Manager Kellogg reported that Morrison-Knudsen Co., Boise, Idaho, and the Ford J. Twaits Co., Los Angeles, builders and operators of the Los Angeles Garage, are interested in the project.

The companies propose to build and operate the garage at their own expense, paying an annual rental for the concession, and turning the property

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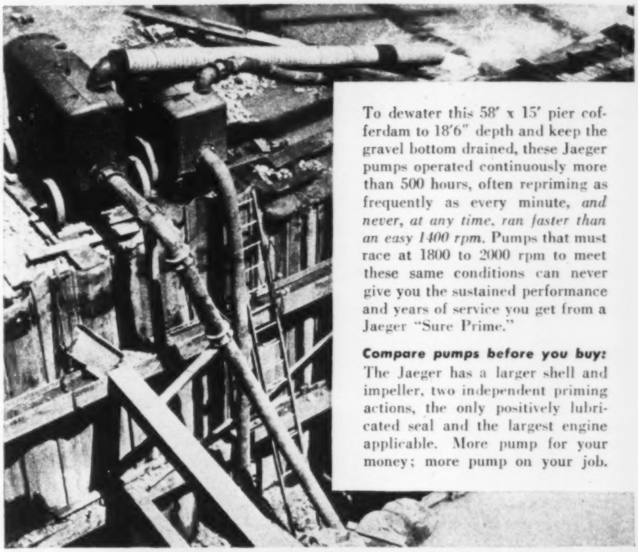

To dewater this 58' x 15' pier cofferdam to 18'6" depth and keep the gravel bottom drained, these Jaeger pumps operated continuously more than 500 hours, often repriming as frequently as every minute, *and never, at any time, ran faster than an easy 1400 rpm.* Pumps that must race at 1800 to 2000 rpm to meet these same conditions can never give you the sustained performance and years of service you get from a Jaeger "Sure Prime."

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SO RELIABLE — S-N quality materials and precision engineered workmanship are world-renowned for providing dependable power transmission.

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SO COMPACT — Mounted on the engine, they conserve space.

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Designed for original installation and repowering of construction equipment like cranes, shovels, rock crushers, pumps, etc., requiring slower shaft speeds than engine speed. Application shown is 12-year-old gravel quarry power shovel repowered with Cummins 165 H. P. diesel engine and S-N 2255/3055 1.5:1 Reduction Gear.

For your future needs, employ S-N transmission experience. Specify S-N, one of the world's principal suppliers of quality reduction gears and power cut-off clutches for changing speed and increasing torque. WRITE TODAY.

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over to the city when the indebtedness is amortized.

• Underground Proposition Re-raised—Members of the County Park Commission, Milwaukee, Wis., indicated this month that they might favor an underground garage at Fourth Ward Park if it would preserve the park.

The Park Commission several years ago turned down a similar proposal on the grounds that it needed all the park space it had.

Perry Anderson, executive director of the downtown ass'n., said that a two level parking area under the park would provide parking for about 600 cars at a time, or about 1500 cars a day. He said engineering studies had indicated that the structure could be built without running into ground water.

• Survey to be Made—A three months' survey to determine the need of off-street parking facilities in the business area in Wilmington, Del., has started under sponsorship of the Wilmington Parking Authority.

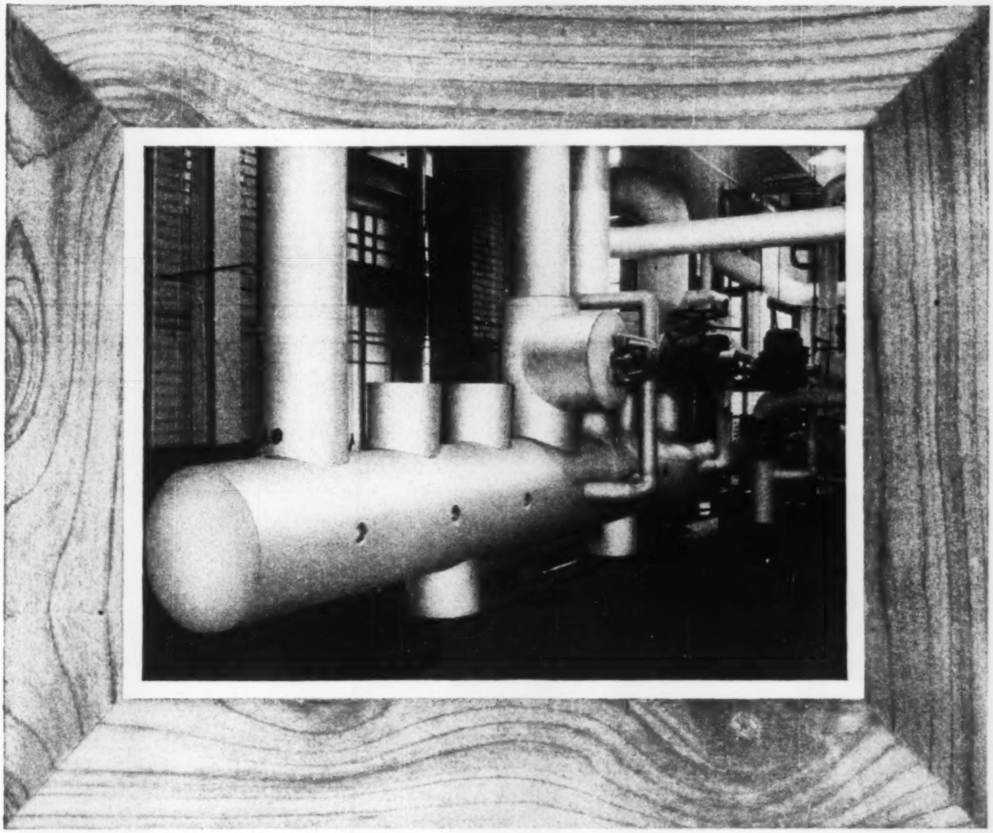
The survey is being undertaken by the consulting engineering firm of Parsons, Brinckerhoff, Hall and Macdonald, of New York City.

• Setback in Chicago—Chicago's parking problem has been further complicated by a decision of a circuit court judge voiding a city zoning ordinance requiring owners of new apartment buildings to provide parking space for one auto for each three apartments.

The ruling held the ordinance unconstitutional because it did not include hotels, hospitals, boarding houses and other buildings in an apartment house neighborhood, and was therefore discriminatory.

Municipal Brief . . .

• Natural fluorides—While many communities are planning to spend sizable sums of money annually to put fluorides in their drinking water, Portsmouth, Va. is lucky enough to be able to tap a natural source. Initial outlay for sinking an 18-in. well from 600 to 800 ft will be \$27,700. Then, annual pumping costs to pull a 2-mgd supply out of the well will be considerably less than the estimated \$15,000 yearly cost of adding fluoride chemicals. Water to be tapped contains about 5 ppm of fluorides. This will be mixed with present surface supplies in proper ratio to get a finished product with the optimum amount of fluorides (1.0 to 1.2 ppm) in it to help prevent tooth decay.



Insulation Contractor: Guy M. Beaty & Co., Charlotte, N.C.

Steam header at Cannon Mills Co., Kannapolis, N.C., insulated with K&M Hy-Temp and "Featherweight" 85% Magnesia Combination, finished with sewed canvas jacket.

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K&M Hy-Temp Insulation is applied directly to the high temperature surface in sufficient thickness to lower the temperature of the outer surface of the insulation to 600° F. or less. "Featherweight" 85% Magnesia, which has a higher insulating value, is then applied directly over the Hy-Temp Insulation, thus utilizing the advantages of both insulations to the fullest extent.

These insulations are supplied in appropriate forms and thicknesses for application to equipment surfaces and piping.

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When planning projects requiring specially engineered doors, you can usually save much time and structural expense by consulting Peelle before plans are too far advanced. The reason is readily seen when you consider the important part played by large, special purpose doors in the planning of structures for defense production or other modern industrial purposes. More often than not, it is advantageous to build the structure around such doors rather than to fit the doors into an already planned building.

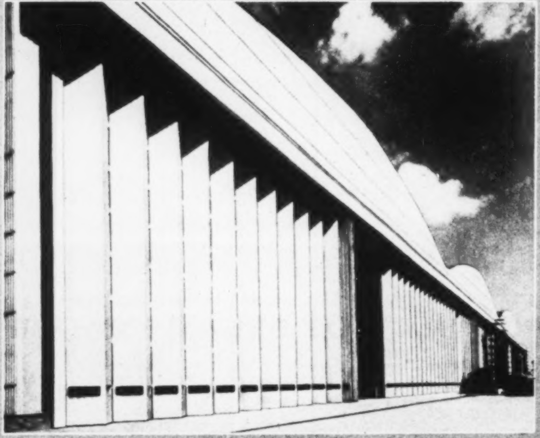
Peelle engineering service is based on long experience in specializing in the unusual . . . in designing and constructing doors requiring the use of unorthodox materials . . . in the imaginative application of sound engineering principles . . . and in the solution of many door problems that had to be answered for the first time.

Get the full benefit of Peelle engineering cooperation—write The Peelle Company in the early planning stage whenever your projects call for special purpose doors.

Peelle-Esavian Door - The front of this huge, three-bay hangar presents a continuous opening of 1045' in width and 65' 9" in height. To close this opening it was necessary to build one of the largest doors in the world, consisting of 3 pairs of sliding-folding aluminum-covered sections. Motive power is housed in the power mullions at each leading edge of the door structure.

The Peelle-Esavian Door is based on an entirely new principle which eliminates the necessity for expensive structural features in the building. The entire weight of the door is carried on the bottom track and the motivating power is on the door. This door offers many unique advantages, particularly for large openings of unusual height.

Write for new Peelle-Esavian Brochure.


BRISTOL AEROPLANE ASSEMBLY PLANT—Filton, England

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RICHMOND KALAMEIN DOORS

RICHMOND INDUSTRIAL STEEL DOORS

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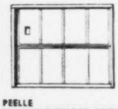
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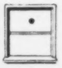
PEELLE MOTORIZED CAR GATES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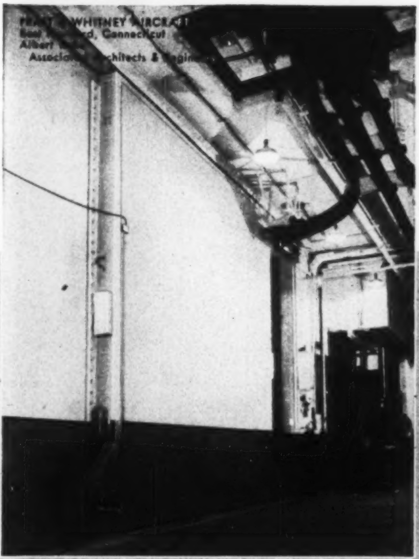
The Peelle Company and its wholly owned affiliate, The Richmond Fireproof Door Company of Richmond, Indiana, offer you wide variety of doors for industrial and commercial buildings, as well as Peelle Motorstairs. Illustrated here are some of the products of the Peelle-Richmond organization which are in wide use throughout the country. Specifications and details of any of these products will gladly be sent on request.



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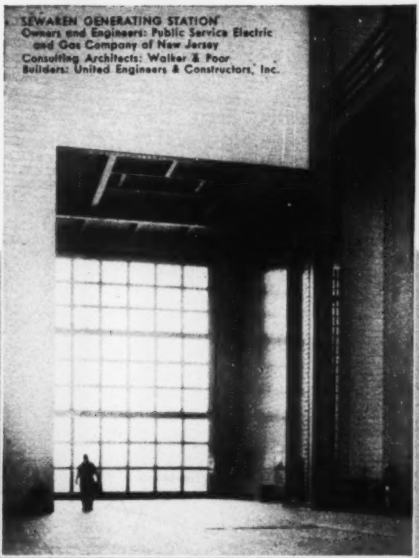
East Hartford, Connecticut
Albert [illegible]
Associated Architects & Engineers

Jet Engine Test Cell Door - To contain and deaden the roar of jet engines on test, Pratt & Whitney Aircraft had The Peelle Company design and build ten of these huge concrete and steel doors for its new jet engine test cell block. Big enough to admit the most powerful engines of today and the even bigger ones to come, these doors had to be built as thick as the walls of the cells themselves to control the enormous volume of sound produced by the engine while running. Constructed in place, these dense concrete doors weigh 45 tons each, yet their electric motor drive travels them horizontally at the rate of 10 feet per minute quite easily. And, from outside the closed door, only a moderate hum can be heard of the earth-shaking roar of the jet engine running inside.



SEWAREN GENERATING STATION
Owners and Engineers: Public Service Electric and Gas Company of New Jersey
Consulting Architects: Walker & Poor
Builders: United Engineers & Constructors, Inc.

Motorized Door Measuring 24' x 35' - This towering stainless steel and glass door was engineered and built by The Peelle Company to carry out the architectural treatment of the building and to satisfy the engineering requirements. Three vertical sliding panels in the door are counter-weighted and are operated by a triple parallel gear head reducing unit with brake. Door panels move at varying speeds to arrive simultaneously at open position.

This is one of many types of motorized doors and partitions designed and built by The Peelle Company for factories, power stations, warehouses, terminals, hangars, mills, garages, hospitals and schools. Peelle Engineered Doors merit consideration in your plans.

OSCODA AIR FORCE BASE—Oscoda, Michigan
Contractors: A. J. Etkin Construction Company

Hangar Door - This motor-operated, 14-section, horizontal sliding hangar door was designed and built by The Peelle Company for an opening 160 feet wide by 25 feet high. It is made with 6" channel framing and 13 gauge steel sheeting. Two inch Celotex is used for insulation. The tail door is the overhead sliding type.

The Peelle Company builds hangar doors of all types and sizes for airports, aviation manufacturers and the U. S. Armed Forces.

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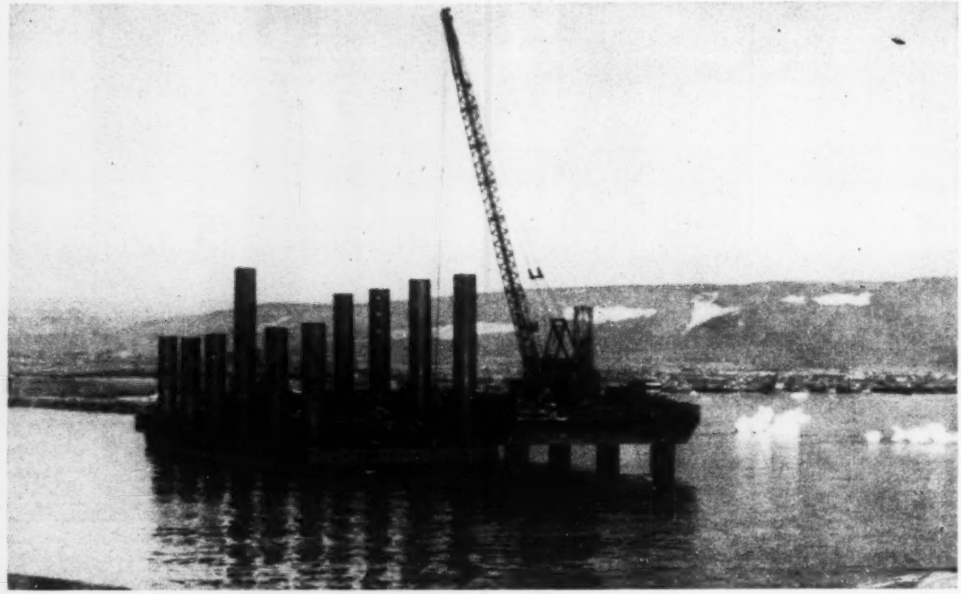


Something new in quick port construction appears as . . . .

Barge puts down legs, becomes a pier

A PREFABRICATED pier or wharf that can be towed to out-of-way locations and there lift itself into position has proved its practicability and ruggedness during more than a year of service in an Arctic installation whose location is still under censorship. Now, however, a similar installation is under way at the Orinoco Mining Co.'s new iron ore shipping station in the interior of Venezuela, and the pier's details can be made known for the first time.

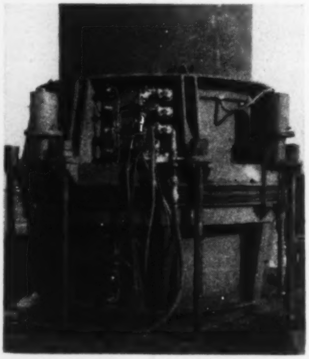
This unusual structure, invented by Leon B. Delong, head of the Delong Engineering and Construction Co., New York City, is a large steel barge standing clear of the water on 6-ft diam steel pipe columns. That is, that is the appearance it presents when completed. When it arrives at the site, however, it is floating, with the columns stowed on the deck and with the holes, through which the columns will be dropped, topped by special circular gripping jacks. These jacks are the spectacular feature of the new pier since it is by their use that the barge is enabled to "climb" up the columns until it is well above ocean tides or river flood stages.

The first unit of the Orinoco pier arrived at the site about two weeks ago, after a 3,000 mile tow, and is now in the process of erection. It is 337 ft long, 82 ft wide and 15 ft deep. Two similar units are being fabricated in the yard of the Consolidated Western Steel Co. at Orange, Texas, and will follow the first one to Venezuela where connections will be made by special expansion pins. When the pier is completed, therefore, it will be more than 1,000 ft long. It will be raised to 30 ft above present water level because of the high seasonal rises in the Orinoco River.

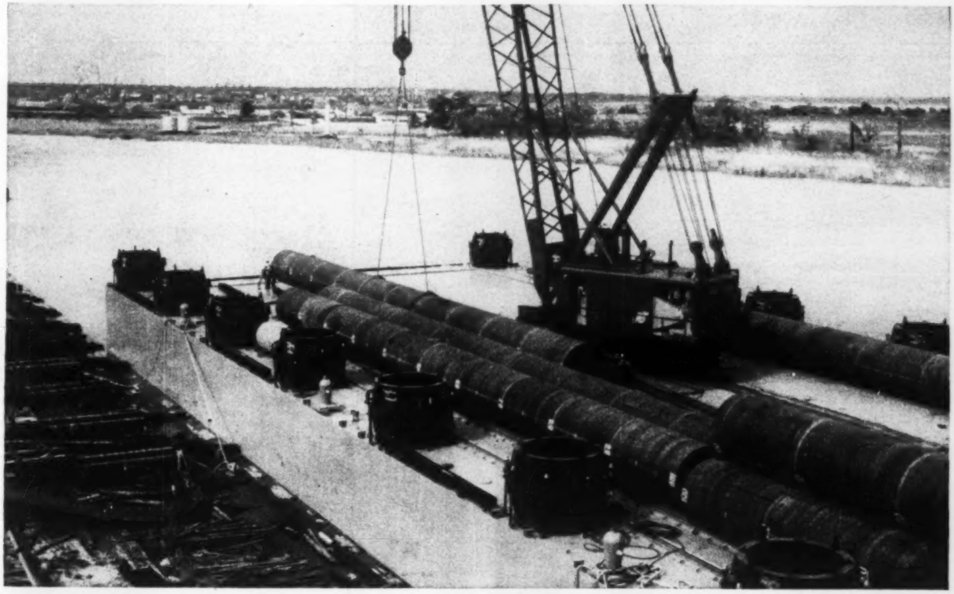
The barge itself is a hollow steel box divided into several watertight compartments for rigidity and for safety in towing. In addition to the column holes and jacks, the barge is fitted with oil and water piping, ship-mooring devices, air compressors and tracks for a traveling crane and for loading conveyors. Finally, before it started on its long tow, it was loaded with the steel pipe columns, each 100 ft long, 6 ft in diam and weighing 40 tons, and with a crawler crane for erecting them.

When a barge arrives on the site of an installation, it is first maneuvered into approximate position and moored until the crane on the deck can hoist and lower the pipe columns through the holes, where they are gripped temporarily by the jacks. Then the barge is shifted into precise position and the pipes lowered until they hit bottom. Since they weigh about 40 tons each (being fabricated from 1-in. thick plate), they readily penetrate any loose material to become firmly enough anchored for the next step. This is the self-lifting operation.

As can be seen in the illustrations, each jack consists of an upper and lower cylinder joined by an accordion



KEY TO ERECTION is this circular jack whose upper and lower halves alternately grip the pipe column to raise the barge.



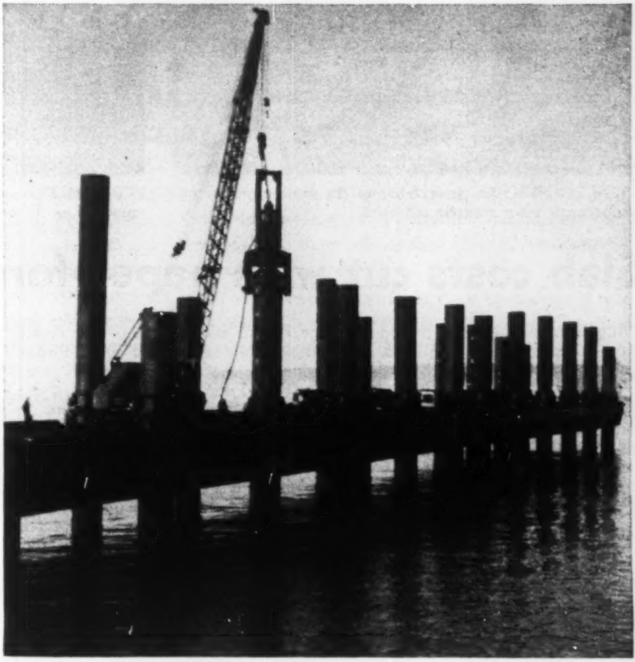
TEXAS TO VENEZUELA—Loading the pipe columns aboard one of the barges that will become a pier deck after the 3,000 mile tow from the fabricating plant to the Orinoco River site.

band. In operation, the upper cylinder is raised, stretching the accordion, and is then clamped tightly to the pipe. Then the lower cylinder, which has been gripping the pipe and is attached to the deck, is released and raised up to the upper cylinder, pulling the barge with it. In this manner, step by step, the barge is made to climb up the pipe columns.

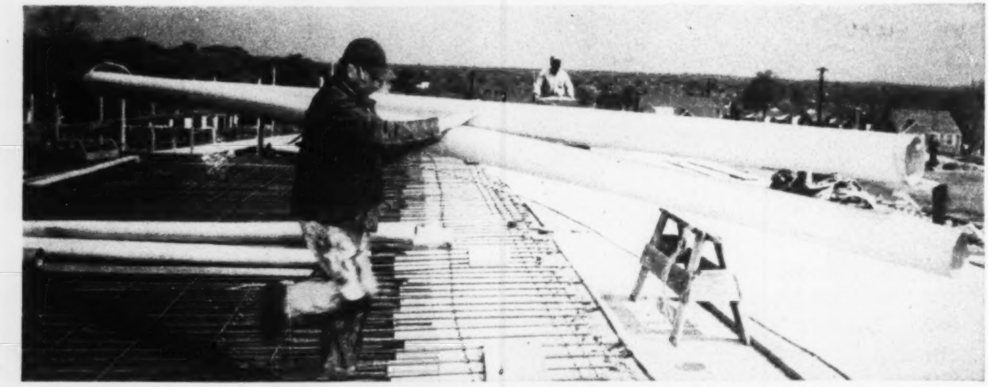
The jacks are operated by compressed air through a master control which assures level raising of the barge, and permits adjustments up or down by as little as 1/16 in. if required.

After a barge is raised to the desired height, the jacks are released one at a time, and the pipe columns driven to refusal by a crane-mounted hammer. After each driving, the jacks are again engaged. Finally the jacks are removed one at a time as the pipe columns are welded to the deck of the barge and cut off flush. The last step is to fill the columns with sand and close their tops with a welded cover plate.

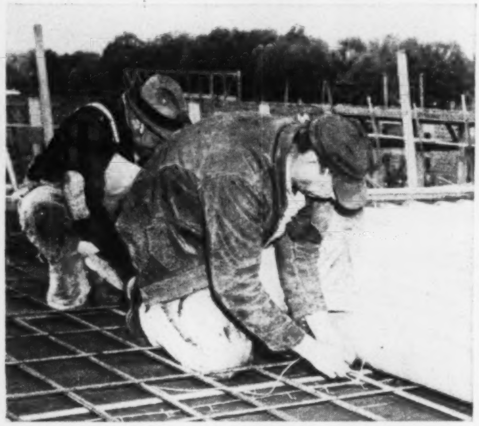
The great advantage of this type of pier rests in the cutting down of the amount of field construction required, and the consequent great erection speed. According to the Delong company, ½ million sq ft of this type of pier is in use or under construction—in other words, four other piers as large as the one being installed in Venezuela.



LAST OPERATION after the barge has been lifted up the pipe columns is to drive them to refusal, then burn them off at deck level. This and the first picture show the pier built more than a year ago at an Arctic site.



PAPER TUBES serve as forms to create circular openings in floor and roof slabs of a high school in Windsor, Conn.



TYING DOWN the paper tubes to the steel prevents their displacement when concrete is placed.

CONCRETE is poured from buggies that travel on runways supported on the tubes. (Wm. Rickert photos)

Slab costs cut with paper-formed hollows

Hollow-slab concrete floors and roofs require less concrete and steel than solid slabs for many types of loadings and spans. But because of the cost of forming the hollows, that type of construction has not always been the more economical. Now A. J. Macchi, structural engineer of Hartford, Conn., proposes an inexpensive method, which apparently makes the cost picture more favorable for hollow slabs.

Macchi's method is being used for construction of a $2.4 million, two-story high school in Windsor Conn. Floors and roofs, with spans up to 35 ft, are one-way reinforced, hollow concrete slabs. Paper tubes serve as forms for the hollows. They are sufficiently strong for the purpose and inexpensive enough to be left in the slab permanently.

• Where economy lies—The circular holes formed by the tubes displace concrete that is of little value in supporting loads. Thus, not only is dead load reduced, but the concrete and steel used are worked at high efficiency. In classroom and administration sections of the school, which have slabs with a clear span of 24 ft, reinforcing steel averages only 3 lb per sq ft.

Elimination of beams from room interiors reduce floor-to-floor height, permitting shorter walls, partitions and piping. The floor system is 10-in. thinner than that of a nearby school of similar dimensions but with open-web steel joists.

Undersides of the slabs are being finished to serve as ceilings, saving the cost of hung ceilings. Acoustic tile was fastened directly to slab soffits in the Windsor school.

• Slab depth varies—The building has 101,000 sq ft of hollow floor and roof slabs out of a total of about 215,000. Solid slabs are used for long-span roofs over a gymnasium and an auditorium and where mechanical installations occurred, such as in shops and kitchens.

In classroom wings and the administration section, the hollow floor slabs are 10 in. thick and roof slabs 9½ in. thick—for a 24-ft span. The slabs are supported on a pair of 12-in. thick, load-bearing masonry walls along a central corridor and on spandrel beams.

Depth of these beams is the same as that of the slabs. The beams are supported on 12-in. square reinforced

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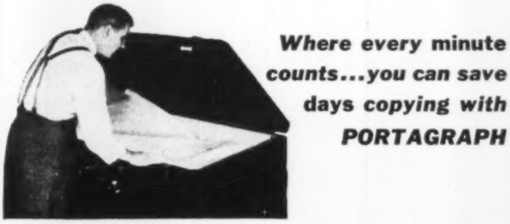

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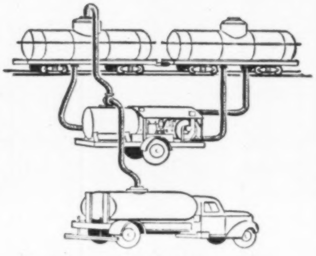

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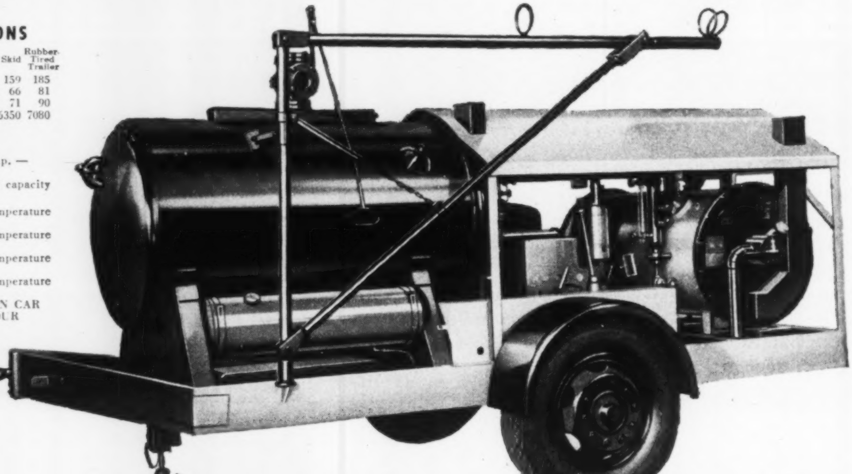

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concrete columns, which are spaced 10 ft. on centers. Between the columns is steel sash.

Holes in the floor and roof slabs in these sections of the building were formed with 6-in. dia paper tubes spaced 8 in. on centers. Wall thickness of the tubes is about $\frac{1}{8}$ in.

In other parts of the building, slabs range in thickness from 9 to 12 in. For clear roof spans exceeding 28 ft, slabs are 12 in. thick; paper tubes are 8 in. in diameter and about $\frac{3}{16}$ in. thick. Holes are spaced 10 in. c-c.

• **New procedures followed**–With a few exceptions, construction methods used are much the same as for a structure with flat-slab floors.

One departure is installation of electrical conduits and pipe sleeves on the plywood forms before the reinforcing steel. Tubes then are cut with a knife to bypass these obstructions.

Spacing of the tubes is fixed with the aid of a toothed templet. To prevent these paper forms from being pushed out of position when concrete was poured, the contractor ties them at 6 to 8-ft intervals with baling twine to the bottom steel. This gives sufficient anchorage since the steel is tied to chairs, which are firmly nailed to the form framing.

Where top steel is necessary, it is laid directly on the paper tubes.

The amount of concrete cover over the tubes is varied by changing the height of the chairs. Thus, a greater concrete area is obtained on the compression side of the slab. Tubes are flexible enough to be bowed when tied down. Where tubes are lapped, joints are wrapped with bituminous building paper.

Under laboratory classrooms, where plumbing and other services are needed and a finished classroom is below, rectangular ducts with open bottoms are formed in the slabs. Where a partition is parallel to the paper-formed hollows, a tube is omitted and extra reinforcing steel added.

Concrete has a minimum compressive strength of 2,500 psi. It is brought to the working area in buggies that travel over runways laid directly on the paper tubes. The concrete is vibrated into place between the tubes with a small vibrator.

• **Costs compared**–The Windsor school was designed for 1,400 students. Having a total floor area of 144,530 sq ft, it incorporates 53 classrooms, a library, auditorium, gymnasium and shops. It cost $1,884,857 to build, or $13.01 per sq ft.

Mr. Macchi calls attention to the opportunity for comparing this cost with that for the Mark Twain Elementary School in nearby Hartford. This school has similar classroom wings, was designed by the same architect and erected by the same contractor. Two stories high also, it has concrete slab floors that were formed on wire-mesh reinforced building paper and that are supported on open-web steel joists. Plastered hung ceilings were required. The building cost $832,250, of $13.21 per sq ft.

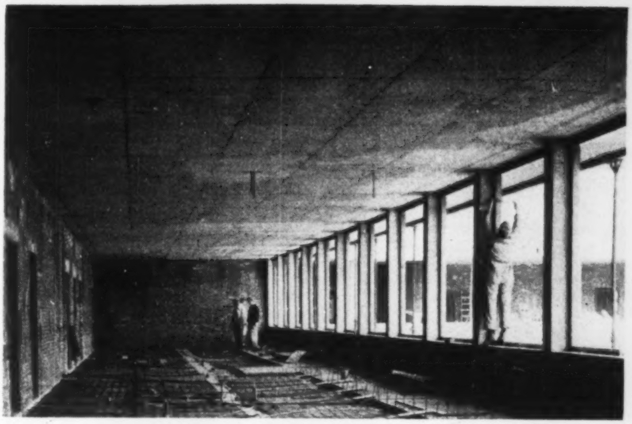
A breakdown of the contractor's floor-system costs for the classroom wings shows the Mark Twain School floors cost $1.57 per sq ft. Windsor High School floors cost $1.35 per sq ft.

While complete breakdown figures are not available for the savings due to the thinner Windsor slabs, the contractor estimates that at least $0.23 per sq ft should be assumed. Hence, the Windsor building slab construction cost about $0.47 per sq ft less.

The contractor attributes the lower differential of $0.20 actually realized in the bidding to the fact that this was the first application of the paper-tube hollow slabs.

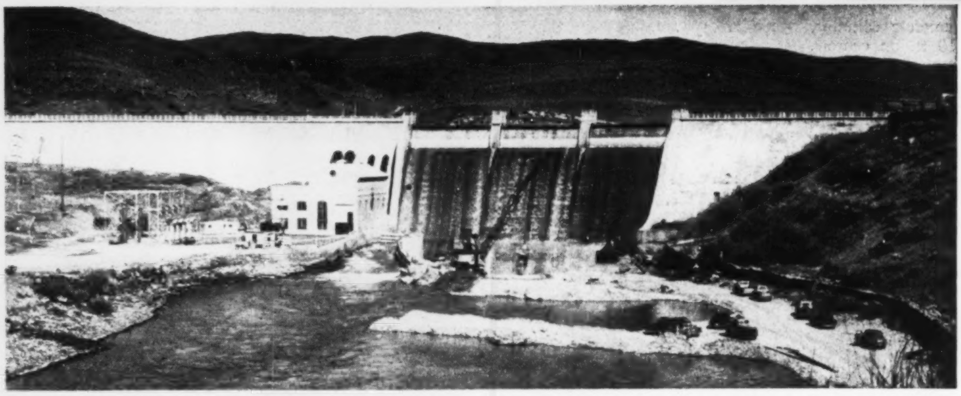
Ebbets, Frid and Prentice of Hartford, Conn., were the architects, with George Kibbe as their representative on the job. A. J. Macchi, who holds a patent on this construction, was the structural engineer. Paul Bemis, of Hartford, was the mechanical engineer. A. E. Stephens Co. is the general contractor, with Sam Tychsen as construction superintendent. And Claude Adams is clerk of the works for the Towns of Windsor.

The tubes are manufactured by Sonoco Products Co., of Lowell, Mass.



SMOOTH CEILING is obtained, ready for direct application of acoustic tile.

A. J. MACCHI, developer of this hollow-slab construction, shows a piece of paper tube to V. A. Frid, architect (on his left); T. M. Prentice, architect; Sam Tychsen, superintendent of construction; and A. E. Stephens, contractor.



BLACK CANYON DAM on March 27, 1952, just 2 days after last concrete was placed for emergency spillway repair. Water leaking under drum gates forced contractor to stop pumping. Dragline crane removes fill so diversion flume can be demolished.

No time to spare in dam repair

AN EMERGENCY REPAIR JOB was completed early this spring on a reclamation dam in Idaho literally minutes before high water would have drowned out the work until fall. As it was, the contractor–Morrison-Knudsen Company, Inc.–did not have time to complete the necessary cleanup work (including demolition of a concrete diversion flume.)

The repair involved placing a 5,800-cu yd concrete apron at the toe of the spillway of Black Canyon Dam. U.S. Bureau of Reclamation officials did not want to risk further erosion and undercutting; thus, the emergency repair procedure was adopted.

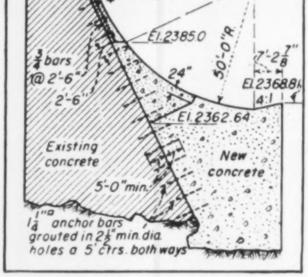
Black Canyon Dam is a 183-ft high concrete gravity diversion structure on the Payette River 25 mi northwest of Boise, Idaho. It generates power for pumping and diverts water for irrigating parts of the Payette division of the Boise reclamation project.

• Savage recommends work–The work was undertaken as an emergency measure as result of the urgent recommendation of John L. Savage, consulting engineer (and formerly bureau chief engineer) who was called in by USBR officials. His report was based on findings of a USBR diver who made a relatively routine check during low water flows last October.

The dam was built with a straight overflow spillway–i.e., no apron or concrete stilling basin. Water flow since completion of the dam in 1924 had eroded natural rock away from the spillway toe. The erosion undercut the toe and some uplift pressure developed.

Using emergency procedures, plans for repairs were drawn in the USBR chief engineer's office in Denver. A contract was negotiated late in December–a procedure permitted when an emergency is encountered. Morrison-Knudsen offered the best proposal on the work and was awarded the contract.

• Water handling–Since Black Canyon is a diversion dam, the first major job was construction of a concrete flume in front of the powerhouse to handle the water during construction. Two 60-in. dia, thin wall (¼-in. thick) steel pipes spanned the 100 ft or so between the outlet valves in the dam and the flume. Thus, the flume carried water from both the powerhouse and the outlet conduits. This system was designed to handle flows that–according to the specifications–might reach 3,000 cfs.



NEW CONCRETE was added at toe of spillway. New apron will protect spillway from further erosion and undercutting.

Some trouble was encountered with one steel pipe. The thin shell collapsed just as dewatering was started early in February. Cause of the collapse is not certain but it is alleged to be due to a sudden closing of the outlet valve causing a negative pressure.

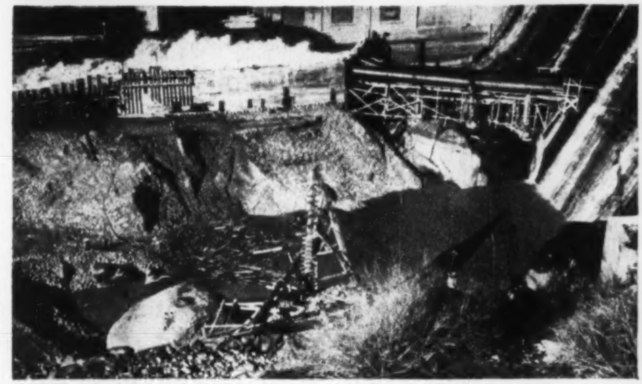
The other pipe was almost immediately reinforced by stiffeners. The collapsed pipe was repaired by cutting, jacking and rewelding until it was as near round as possible. Then stiffeners were added to it too. Had the collapsed pipe not been repaired so it could carry higher flows during late stages of the work, it is doubtful that the work would have been successfully completed.

• Rush work needed–The second major construction problem was to complete the work before start of high spring flow in the Payette River. That meant dewatering the toe of the dam and placing the necessary concrete–all of which had to be done under winter operating conditions.

Dewatering started Feb. 1 and first concrete was placed Feb. 23. Some delay was encountered due to sloughing into the hole of material from a construction road. Excavation some 90 ft below normal tail water elevation was required.

• Winter concreting–Weather worked in favor of the job in that work was not unduly delayed by storms. But low temperatures required special measures in mixing the concrete.

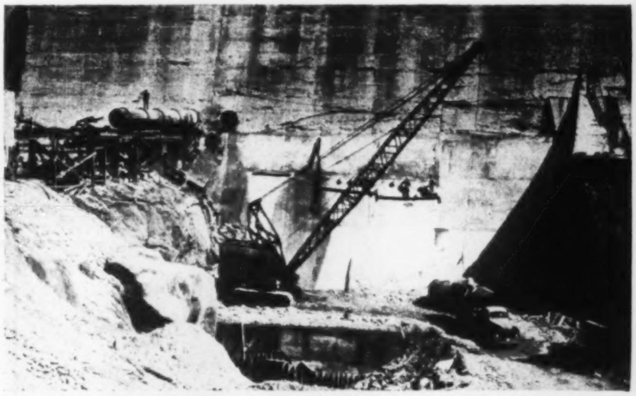
Mixing water was heated to 140 F. Besides that, calcium chloride was added to the mix to the extent of 1% by weight of cement. CaCl



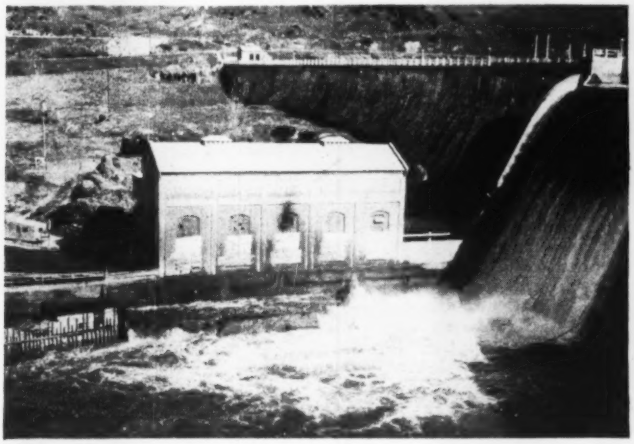
FEB. 4—FLOW IS DIVERTED through concrete flume and steel pipes while dewatering proceeds. Note partly collapsed pipe.

FEB. 23—FIRST CONCRETE goes in deep fault zone.

MAR. 17—CONCRETING PROCEEDS as high water time draws near.



MAR. 26—CLEANUP STARTS just following last concreting. Next day high water reached drum gates and pumping was stopped.



MAR. 31—FLOW POURS OVER DAM only 5 days after concreting was finished. Diversion flume will be removed this fall.

MAR. 31—WELDERS EXTEND DRUM GATES as last phase of job.

generates heat and promotes faster setting. Since the concrete was placed in a restricted area, no other cold weather precautions were believed to be needed.

The new protective concrete spillway apron was carried to just above normal tail water elevation. USBR officials plan to reface the entire spillway at a later date. This work not being of an emergency nature will be deferred until it can be done by normal financing and contracting procedures. To join with this future work, the top of the new concrete just placed projects slightly from the spillway face. No dewatering is anticipated for the future work.

• **Just in time**—Concreting was completed on March 25, 1952. Just 2 days later, water level in the reservoir rose to the base of the drum gates. Leakage under the gates drove the contractor out of the hole. The two 12-in. pumps could not keep up with the flow.

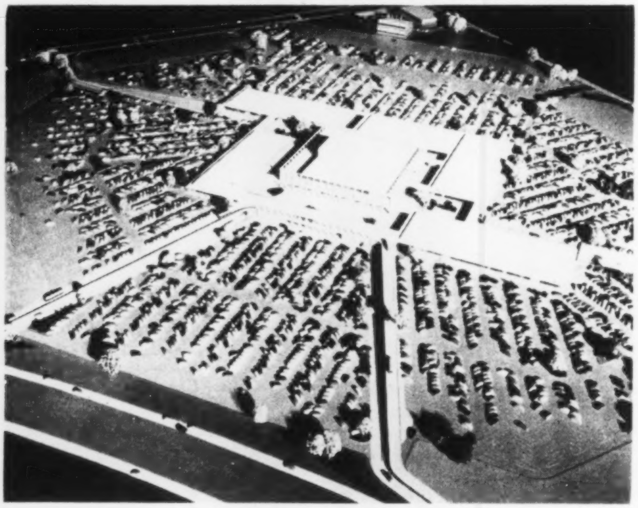
Water poured over the spillway on March 31. By this time, the contractor had removed the diversion pipes and their cribbing. But, the water level rose so fast that complete demolition by blasting of the concrete diversion flume was not possible. Removal of the flume wall will be completed this fall when low water conditions will again obtain. Since this is the last of the job to be done, final payment will not be withheld. Instead the contractor has posted a $10,000 bond to guarantee the work.

Another phase of the work was adding of a 10-in. extension on each of the drum gates. Purpose was to add storage capacity and to project flow out from the spillway during overflow conditions. The extensions were made by welding ¾x11-in. plates to the drums.

• **Credits**—The repair work has taken most of the $500,000 allotted from the Commissioner of Reclamation's special emergency funds. B. "Woody" Williams, Morrison-Knudsen vice-president, was in general charge of the work. M-K superintendent on the job was George Piedmont.

Earl Harmon was construction engineer for the Bureau of Reclamation.

Deluxe store center goes up



Construction began this month on Northland Center, regional shopping area, to be built by the J. L. Hudson Co. in Detroit.

On April 30, an NPA order allotted necessary materials. Current estimates indicate that the shopping center should be completed within 20 to 24 months. It may cost $20-million to build.

Northland Center will occupy 161 acres of a 409-acre site, aimed at serving an area with some 450,000 residents. It follows almost three years of extremely detailed planning by Hudson's and a staff of nationally known experts on merchandising, architecture, land use, traffic flow, construction and market analysis.

Architect Victor Gruen, Los Angeles, developed the original concept and plan for the center and will execute the overall project. Karl Van Leuven, Jr., one of Mr. Gruen's associates, is in charge of the Detroit office and will handle the Northland Center project. The H. E. Beyster Corp. of Detroit has been retained as engineering consultant. Roads and traffic consultant was Lloyd Reid, former city traffic engineer for Detroit. Bryant and Detwiler Co., Detroit, is the general contractor.

• **Building details**—Construction of the entire center will be reinforced concrete, and all buildings will be air conditioned.

The Center is designed as a group of one-story stores, shops, markets, restaurants, grouped around garden courts and malls. The Hudson branch, located in the center of the project, will be three stories tall. There will be approximately 70 tenant stores.

Storage and service facilities are located in basement areas, keyed to a vast system of freight-truck passages, loading platforms, and service areas—all underground. The complicated services for the center will be kept completely out of sight and earshot of the customer.

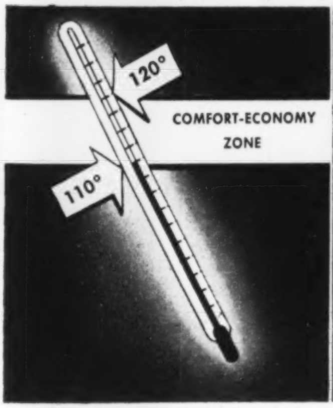
• **Special services**—Other service facilities include an auditorium with entrance from both inside and outside the Hudson store—designed for use during and after store hours by community groups such as Boy Scouts, fraternal organizations, women's clubs, etc. There may also be provision for model homes, outdoor fashion shows, and seasonal holiday events.

A detailed analysis of present and predicted traffic on the four major highways surrounding the Center went into the design of the traffic pattern. The parking area consists of nine sections, although the sections will not be defined to the motorist.

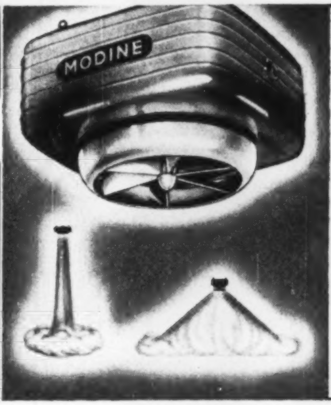
Since traffic flow is heavy on each of the four highways, access to the parking area will not be directed from any one of the four. Instead, the pattern will be such that the motorist by repeated right turns, approaching from any of the four highways will be able to get in, park, and leave. Individual car spaces will be staggered so that a motorist will find an empty place by continually traveling to the right. Spaces will be available at the start for 6,000 cars.

Economic and population changes in the Detroit metropolitan area, which show Detroit to be the fastest growing city east of the Pacific States, are given as reason for the project.

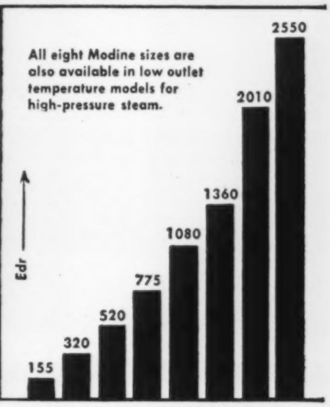
Three of many outstanding features that account for the Modine quality reputation



Discharge air temperatures of 110° to 120° F. are correctly related to air-velocities — assure perfect heating comfort plus lower fuel costs.



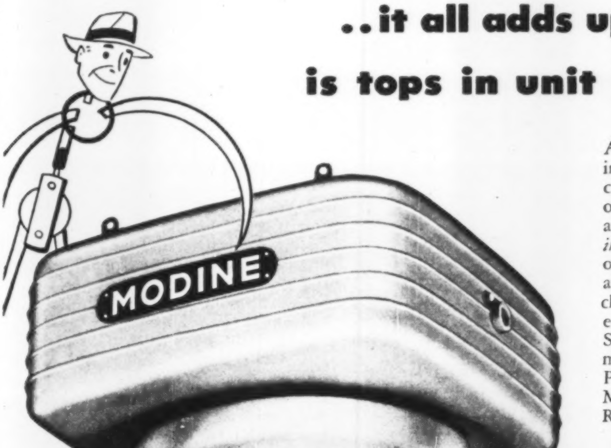
Versatile control of air delivery is provided by Cone-Jet, Truncone or Louvre deflectors. You can choose the *right* one for your job at no extra cost.



Big Modine Vertical Units for big defense plants eliminate expensive ductwork, retain the flexibility necessary for subsequent changes in plant layout.

COMPARE

..it all adds up to this..Modine is tops in unit heater values



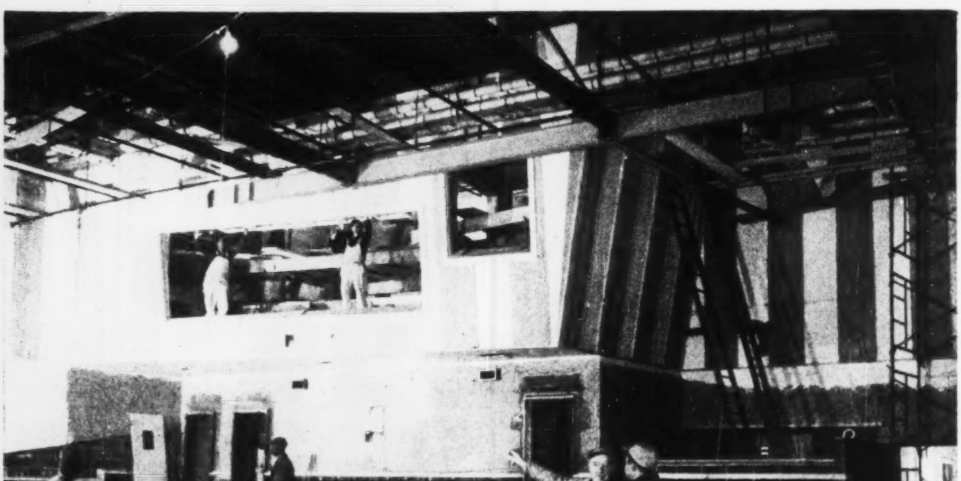
Advanced engineering . . . superb styling . . . highest grade materials and craftsmanship — all quality hallmarks of Modine Unit Heaters. They're your assurance of *heating performance at its best* — high fuel economy . . . years of trouble-free service. Built to a standard of excellence — Modine is the choice for unfailing dependability, lower operating and maintenance costs. So whether you need Vertical Delivery models (illustrated), Horizontals or Power-Throws — *compare first!* Modine Mfg. Co., 1565 Dekoven Ave., Racine, Wis.

Vertical delivery model shown here. Also available in Horizontal and Power-Throw types.

Write for Bulletin 149-A, "Modine Unit Heating." Or contact your Modine representative listed in the classified section of your phone book.

Engineers rate Modine
the standard of excellence

Modine UNIT HEATERS



WALLS of WCAU TV studios are striped with acoustical blankets; ceilings will be completely covered. (The Austin Co. photo)

Building planned for TV-radio broadcasting

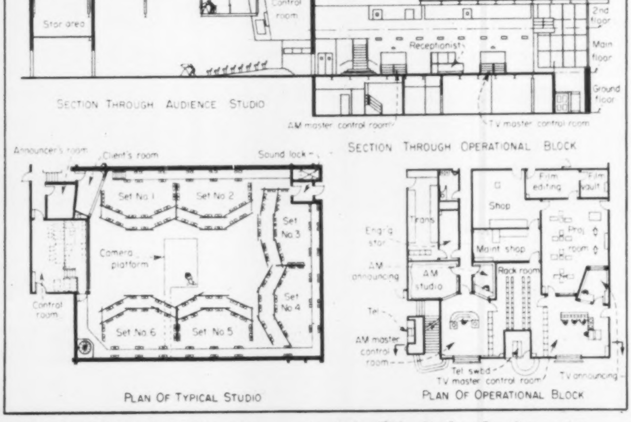
New home of WCAU Philadelphia, one of the first buildings constructed exclusively for radio and television activities was opened for business this week—May 27 to be exact.

Designed to produce the utmost efficiency in television and radio activities, the new building will permit eventual trebling of studio facilities.

After extended research and observation of TV and radio plants throughout the nation, in addition to consideration of their own needs, WCAU's planners outlined four prime "musts" for their center:

- A location away from the city center providing space for expansion, yet readily accessible to office personnel and public.
- Plan assuring efficient operation.
- Ground-level operations for both TV and radio, making elevators and stairways unnecessary and facilitating storage of heavy props and sets.
- Some space provided for quick expansion as well as ground space for long-term expansion.

A suitable building site was found just 12 minutes from central Philadelphia. The 10-acre plot with 600-ft frontage on two streets is centered in the fast-growing City Avenue area.


Stor area
Control room
Receptionist
2nd floor
Main floor
Ground floor
SECTION THROUGH AUDIENCE STUDIO
AM master control room
TV master control room
SECTION THROUGH OPERATIONAL BLOCK
Announcer's room
Client's room
Sound lock
Set No 1
Set No 2
Set No 3
Set No 4
Set No 5
Set No 6
Camera platform
Control room
PLAN OF TYPICAL STUDIO
Film editing
Film vault
Shop
Trans
Eng'g stor
Maint shop
Proj room
AM announcing
AM studio
Rack room
Tel
AM master control room
Tel swbd
TV master control room
TV announcing
PLAN OF OPERATIONAL BLOCK

PLAN AND SECTIONS through key units of the TV-radio broadcasting center.

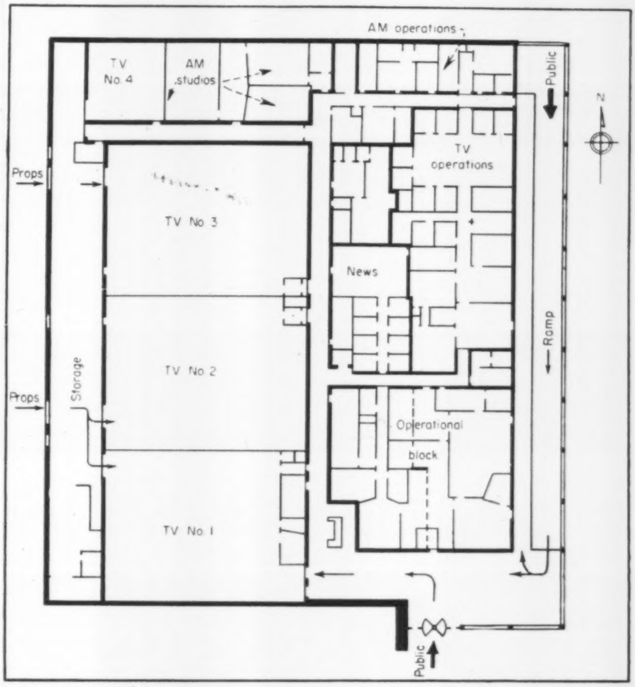
- **Efficient layout**—The 201x230-ft building is divided into two sections. One contains building services on the ground floor, operations offices on the first floor and administrative offices on the second floor. The other section houses all radio and TV studios, control rooms and a large storage area.

The main entrance leads directly into a glass-enclosed two-story lobby. TV and radio master control rooms are located on both sides of the lobby desk, and control room activities may be viewed there by the public.

Adjoining the main lobby and bounded by three corridors is the "operational block" containing all elements needed for network TV and radio programming. Many TV and radio operations in early morning and evening can be handled in this section, permitting the remainder of the building to be closed off. News and transcription operations, used jointly, are located in this "nerve center."

On the ground floor of the 3-storied

section are dressing and make-up rooms, an 80-seat cafeteria, printing and photography shops, heating, air conditioning and power plants, garage facilities and storage space. The second floor houses executive, sales and auditing offices, as well as program and public relations departments.



STUDIOS are located in a separate section from offices and the "operational block"—nerve center of the building.

• Studios isolated—All TV and radio studios are located in a separate section to assure soundproofing and operational efficiency. Three large 60x80-ft TV studios, with clear height of 20 ft, occupy more than three-fourths the length of the building. The fourth TV studio and three AM rooms fill the remaining space.

A 20-ft wide hall links all TV studios, facilitating movement of props and scenery. Large doors opening to storage space at one side of the TV studios make possible movement of large objects from ground level into storage or onto studio floors.

One TV studio, with a working area of 40x60 ft, is equipped with 230 seats for audience participation. Above the ramped audience section, a large cantilevered control room overlooks the sets. This room has slanted windows of tinted glass, which reduces light transmission about 75%.

The other TV studios are equal in size, but have no audience section. Catwalks accessible from the floor or control room are set at the proper height for securing tops of sets and adjusting back lighting, which is mounted on overhead rails.

The roof over the studios is supported on 60-ft steel trusses. Truss diagonals are omitted for flexibility in installing equipment overhead.

Each of the AM studios has its own control room. One control room, however, overlooks three studios.

Present layout of the building lends itself well to future expansion of TV facilities. Future studios could be added along one side of the building allowing present TV storage areas to serve as common space for all studios. Truss construction of new studios would be the same, and all control rooms would be concentrated in the same area and on the same level.

• Air conditioning—Refrigeration for the building's air-conditioning system is provided by two 200-ton compressors, each able to carry all operations in an emergency. Eleven zones, grouped according to usage and hours of occupancy, are separately cooled and heated.

In turn, each zone is subdivided into sections with thermostatic control. Operations rooms with essentially the same hours of occupancy have been grouped to give efficient heating.

Each TV studio is zoned as a unit to allow continuous operation or shutdown without affecting other studios.

• Sound absorption—Acoustical treatment of all studios is a combination of rock-wool blankets, isolated walls and serrated surfaces. Each TV studio has a muslin-covered, wire-mesh protected rock wool surface over 100% of the ceiling and 50% of the walls. It is exposed, except in portions of the audience studio where damage might occur.

The AM studios, control rooms, announcer booths and other adjacent spaces received acoustical treatment on walls and ceilings of absorbent material faced with perforated asbestos cement.

• Lighting—In the TV master control and projection rooms, lighting consists of shielded lamps suspended from the ceiling on 3-ft long flexible shafts. The shafts are placed so that the lights may be concentrated where required, while the remainder of the room is relatively dark.

For TV lighting, each of the studios is divided into stages or sets. Lights clamped to metal batons are suspended by chains from a pipe grid mounted on the lower chord of the roof truss. Batons may be raised, lowered or changed in angle by adjustment of the chains. In addition, the lamps may be adjusted individually.

Lighting circuits are brought to a distribution center on a platform that passes through the trusses and is accessible from catwalks.

A mercury relay connected to two lights controls each circuit. A small switch on a light-operating console in the control room activates the relay. The circuits are mastered so that lighting changes can be pre-set.

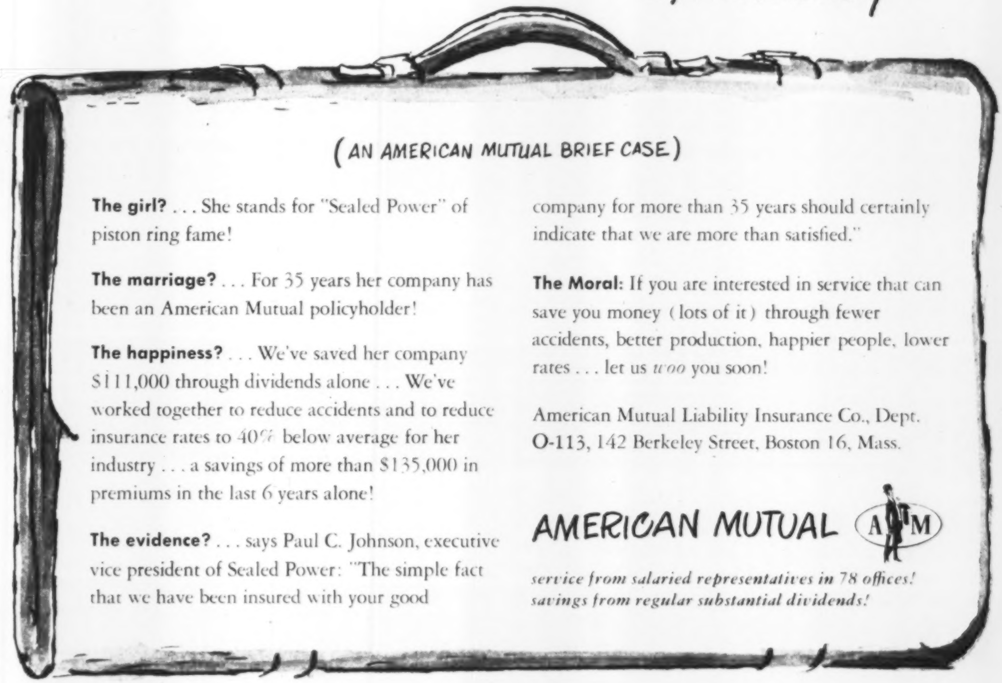
Wiring for the operational block and AM studio areas is placed in metal trenches connecting various rooms and equipment locations in each room. Office areas have under-floor duct with high and low tension compartments. To link camera and microphone cables from studio to control room and thence to master control rooms, expanded-metal duct is used. Conduit supplements these three systems where required.

The Austin Company built the TV and radio center. The WCAU engineering department planned the technical facilities in collaboration with The Austin Company. Acoustical and insulation work was done by Johns-Manville.

"HAPPILY MARRIED"
SEALED POWER
CORPORATION

FOR 35 YEARS!

By Mr. Friendly



(AN AMERICAN MUTUAL BRIEF CASE)

The girl? . . . She stands for "Sealed Power" of piston ring fame!

The marriage? . . . For 35 years her company has been an American Mutual policyholder!

The happiness? . . . We've saved her company $111,000 through dividends alone . . . We've worked together to reduce accidents and to reduce insurance rates to 40% below average for her industry . . . a savings of more than $135,000 in premiums in the last 6 years alone!

The evidence? . . . says Paul C. Johnson, executive vice president of Sealed Power: "The simple fact that we have been insured with your good company for more than 35 years should certainly indicate that we are more than satisfied."

The Moral: If you are interested in service that can save you money (lots of it) through fewer accidents, better production, happier people, lower rates . . . let us *woo* you soon!

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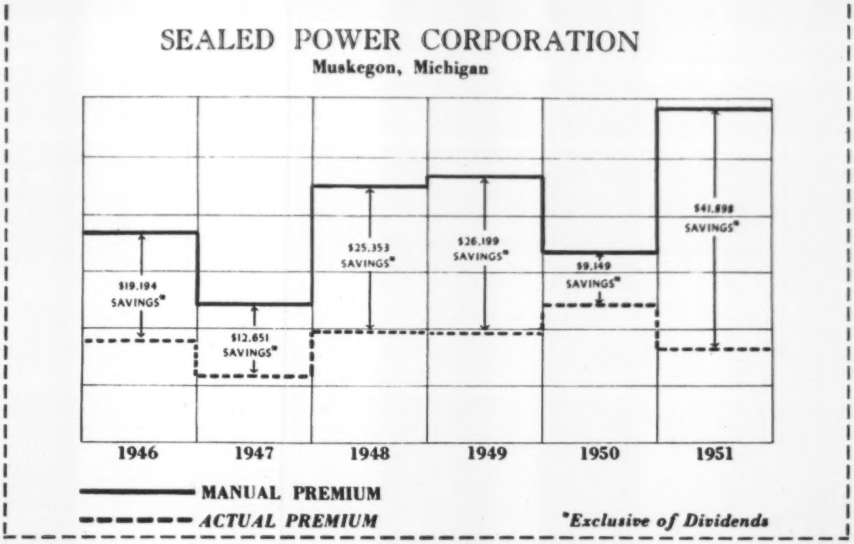
service from salaried representatives in 78 offices!
savings from regular substantial dividends!



SEALED POWER CORPORATION
Muskegon, Michigan

*Exclusive of Dividends

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What charges will industry accept for industrial waste disposal?

A $30 MILLION TRUNK SEWER PROJECT has been stalled in New Jersey. Middlesex County Sewerage Authority has been unable to enlist the 90% of potential financial support—municipal and industrial—it needs to go ahead with its full project to clean up the Raritan River.

Several industries and communities failed to meet the May 1 deadline set by the authority for participants to comply (ENR May 8, p 19). Negotiations continue, but the authority has instructed its consultants to reestimate the project, excluding present nonparticipants. State Health Department action (yet to be taken as this went to press) may bring some recalcitrants into the fold. And public sentiment, strong for the project, may be a factor.

Failure to enlist the needed number of participants in its trunk sewer project by the May 1 deadline reflects no lack of effort on the part of the sewerage authority. But its task has been sizable.

Carefully figured trunk sewer service charges won over most—but not enough—of the Raritan's present polluters.

There were high hopes last week that Calco Chemical (American Cyanimid) was on the brink of joining—and that other big industry might follow. Du Pont and Johns-Manville are two of the bigger firms still to sign.

A public relations job of exemplary nature has been done. And a rate structure has been worked out embodying some of the best thinking on how to finance sewage and industrial wastes disposal. (For a discussion of the fundamentals of fair charges for water and sewage services, see ENR Dec. 27, 1951, p. 29.)

• Bankers need signed contracts—Middlesex County Sewerage Authority can't get revenue-bond financing for its plan until it gets contracts signed by participants who will pay 90% of the dollar cost of the project. The project includes a 27-mile trunk line, treatment plant and bay outfall.

The Authority (it was created by Middlesex County Board of Freeholders 21 months ago) up until now has had very little money and no statutory right to borrow the amount it will need. Two $15,000 loans from the Freeholders have paid some legal and administrative expenses. Donations from civic groups have financed public relations efforts. Commissioners and their sparkplug secretary, W. H. Baumer of Johnson & Johnson in New Brunswick, have served long, hard hours without pay. And consulting engineers—Metcalf & Eddy, Elson T. Killan, of Short Hills, N. J., and Charles J. Kupper, of New Market, N. J.—have reviewed the problem, written a report (March 1951) recommending the trunk sewer, and outlined its costs and financing—all in anticipation of successful financing of design and construction.

The consultants, in session with industrial representatives from the valley, have ironed out many differences on the proposed sewage service rate structure. And in this phase of the work, Prof. Willem Rudolfs of Rutgers University figured very prominently. It was he, more than any other individual involved, who was responsible for figuring the rates to be paid for disposal of wastes. In this work he was assisted by H. Heukelekian, researcher at Rutgers whose analysis of wastes entering the Raritan is the basis on which costs to individual contributors have been computed.

• The answer reached—Here, quoted from the contract signed by most cities and industries in the valley, is the basis for charges to be made for collection and treatment of their wastes:

"The Authority will make and impose charges . . . sufficient to pay . . . for the expenses . . . of trunk sewer. Such charges . . . shall be computed for the service rendered (based on) flow, BOD, suspended solids content and chlorine demand."

Established rates appear in the table below.

SCHEDULES OF RATES

FIGURED FOR RARITAN TRUNK SEWER

1. Flow

Million gallons per quarter		Charge per million gallons
First 5	at	$187.00
next 5	at	123.00
next 30	at	90.50
next 60	at	43.25
next 100	at	22.60
next 200	at	18.70
over 400	at	16.50

2. Biochemical oxygen demand (5 day at 20 deg C.)

Tons per quarter		Charge per ton
First 30	at	$9.52
next 70	at	8.92
next 100	at	8.04
next 200	at	7.10
next 400	at	5.70
over 800	at	4.74

3. Suspended solids

Tons per quarter		Charge per ton
First 10	at	$13.20
next 70	at	12.76
next 170	at	10.78
next 450	at	6.10
over 700	at	5.80

4. Chlorine demand

Short hundredweights per quarter		Charge per short hundredweight
First 30	at	$5.69
next 60	at	5.20
next 180	at	5.00
next 540	at	4.75
over 810	at	4.45

• One step at a time. This was the procedure in figuring rates:

Each industry discharging liquid wastes into the river (not the sewers) was asked to submit a sample for examination. Hourly samples composited for 24 hours were taken. (These were raw wastes except that some had been passed through lagoons for some primary sedimentation.) A composite sample of raw sewage was taken from New Brunswick (where industrial wastes are in high proportion) and a catch sample was taken from Highland Park as representative of the other cities in the valley.

Sample wastes were mixed in proportion to their calculated flow, after individual settleable solids, suspended solids and BOD had been determined. The same tests were made on the mixture. Then after sedimentation, suspended solids and chlorine demand tests were made. Several such mixtures were tested.

Chlorine demand for these tests was set at the quantity which gave 0.1 ppm residual after 15 minute contact time.

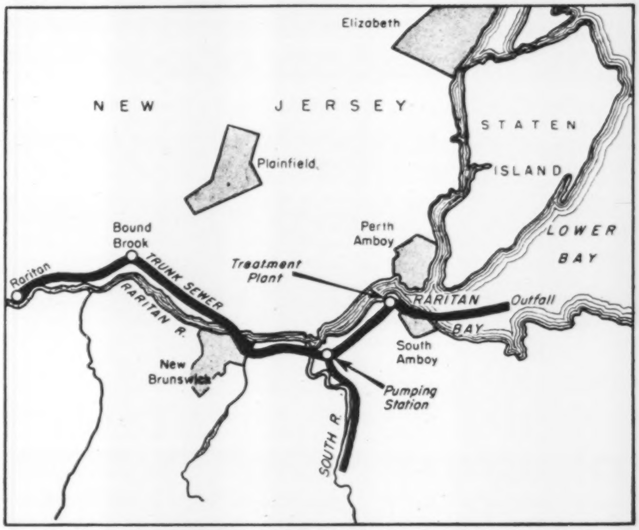
• Findings—Aggregate flow of wastes into the river was taken from previous studies as 74.5 mgd (a value taking into account volume of non-polluting wastes). The pH values of wastes were found above the minimum requirement of 4.0 except for those from three of the industries. And two other industries discharge wastes of pH above 8. One mixture had a pH of 5.5. Other mixtures had pH values 5.6 to 5.8.

The several mixtures represented suspended solids quantities varying from 178,850 to 215,000 lb per day, reduced after one-hour settling by 70 to 80%; BOD varied from 172,500 to 191,500 lb per day. Chlorine requirement to produce an effluent with about one coliform organism per ml varied from 20,000 to 32,800 lb.

Tests showed that the total suspended solids to reach the treatment plant will exceed the sum of suspended solids discharged into the trunk line, because interaction of the various wastes will precipitate certain ingredients in the sewer. BOD, on the other hand, is expected to diminish slightly enroute.

Chlorine demand of the mixture by the orthotolidine test is estimated at appreciably lower than the sum figured for all the wastes taken individually. As Prof. Rudolfs puts it, "There are several times the chemicals needed for treatment right in our wastes."

• Making findings acceptable—The trick was to translate these findings on the wastes into dollar charges for treatment. And chlorine demand posed the toughest problem.



DRAINING AN INDUSTRIAL VALLEY the trunk sewer as planned would remove a heavy pollution load from the Raritan River.

As expressed by Authority Secretary Baumer at a Jan. 30 session with industrial representatives, here was the problem:

"How can the authority allocate chlorine demand charges on an equitable and acceptable basis to all its customers, while providing sufficient revenue to pay for cost of the chlorine actually used at the central treatment plant?"

The simple answer was to charge each contributor according to chlorine demand determined at his point of discharge into the trunk sewer. But this had to be qualified: Where chlorine demand charges against a participant exceed $25,000 per year and there are special wastes complicating measurement of the proportionate share of chlorine demand, charges will be based on field tests that determine effect of that particular waste on the authority's treatment plant effluent. Chlorine demand will be that which must be added along with the waste in question to keep plant effluent within the bacteria count limit.

The difference between cost of chlorine actually used and chlorine charges levied against contributors each year will be repaid to or made up by the contributors in proportion to their contributions to the actual chlorine demand.

These refinements of the rate formula resulted from repeated meetings and discussions—authority representatives, their consultants, the participants and their engineers all taking part.

• "Witnesseth . . ."—Participants will deliver their wastes to the trunk sewer, or to the near shore of the Raritan where the trunk sewer is on the far shore. The authority will build all under-river ties. The participants will make connections to the trunk line and the authority will provide for necessary metering and sampling facilities. No future additions to the system will be made without written consent of participants contributing 51% of the authority's dollar support.

Annual charges will be estimated in advance by the authority's consultants, then paid in equal quarterly installments by the participants. Charges collected will be brought into line with actual costs figured at year's end, extra charges or refunds being made as necessary to cover differences.

Cities abandoning existing treatment works to tie into the trunk sewer will be reimbursed for the remaining useful life of their facilities by the authority. From city-financed construction cost of the original plant (less PWA support) 4% per year since the plant went into operation will be deducted. The final remainder is what the authority will pay the city. And the sewage treatment plant will still be property of the city.

Lastly, if bids received on the project exceed its estimated cost by more than 12.5%, the contract is void—unless, of course, lower bids can be secured or participants agree to a new contract incorporating the higher ones.

• "Now therefore . . ."—With participants all signed up, and financing assured, the authority figures it would take its consultants six to eight months to prepare contract drawings for the project. It is estimated that construction would take another 18 months, putting completion of the project in mid-1954—if present troubles somehow can be resolved quickly and financing can be assured.

Assignments of design work to the consultants are not complete as yet. But, under tentative agreements, Metcalf & Eddy would consult on the overall project and design the treatment plant and subaqueous outfall; Elson T. Killam is to design a major portion of the trunk sewer including pumping station and force main; Charles J. Kupper is to handle another length.

Field survey work has been in progress for some time. There are no details of treatment process as yet, but it is to be primary treatment plus effluent chlorination, with disposal of sludge from barges at sea. It is questionable whether addition of coagulants will be necessary; chemcials already in the industrial wastes may do a sufficient job of coagulation on suspended solids.

Industrial wastes present prevent use of biological secondary treatment methods.

Capacity of the plant is to be 95 mgd with provision for enlargement in about 1975. There is planned an 8½-ft dia reinforced concrete outfall of 200-mgd (2000 A.D.) capacity extending two miles into Raritan Bay to multiple outlets designed for quick dispersion of effluent.

• Collection system—The trunk sewer (as shown on the map) starts upstream at Raritan, N. J., with a 3 to 4-ft diameter pipe paralleling the river on its north bank and connecting to south bank contributors by inverted siphons. It crosses under the Raritan into New Brunswick and follow the stream again to the pumping station. A 4½-mile branch brings flow north along the South River in a 3 to 4-ft dia pipe and also feed into the pumping station. Communities and industries downstream from the pumping station discharge directly to the treatment plant, according to the plan.

Two major communities downstream from the treatment plant decided early against participating in the project. In fact, from these cities came vociferous opposition to the trunk sewer, charging that inadequately treated effluent from the proposed treatment plant would be worse for Raritan Bay than run-of-the-river pollution it now gets—with some natural purification—from upstream.

Anticipating reluctance of the Amboys and not depending upon their participation for a complete project, consultants for the authority figured the costs two ways—with and without the Amboys. Total cost of the project without them is less by over $1 million.

• Balked—In a valley where practically no city or industry has been treating its wastes to meet State Health Department standards, a project for complete clean-up is stymied. A grossly polluted river and a somewhat less polluted bay are to remain for a while longer unfit for industrial use, recreation and commercial fishing.

The proposed construction project would cost more than needed improvements on existing individual plants. But annual charges, fixed plus operating, would be substantially less than for several individually operated plants according to estimates.

Middlesex County Sewerage Authority thought it had a sound project that cities and industries along the river would consider. And it recognized and accepted the responsibility to sell that project to potential participants. The outstanding public relations and education job that has been done is a story in itself—to be told in next week's issue.

ESTIMATE OF ANNUAL SERVICE CHARGES

Municipal or Other Corporation	Estimated Annual Service Charge
Borough of Middlesex	$27,600
Borough of Dunellen, City of Plainfield and Borough of North Plainfield	98,400
City of New Brunswick	192,900
Township of North Brunswick	22,500
Borough of Highland Park	31,800
Township of Raritan	54,700
Borough of Metuchen	28,200
Borough of South River	38,600
Borough of Sayreville	26,400
Township of Woodbridge	30,400
Borough of Bound Brook	28,700
Borough of South Bound Brook	11,000
Borough of Somerville	45,900
Borough of Raritan	23,200
Borough of Manville	28,000
American Cyanamid Company	207,000
Johns-Manville Corporation	79,500
The Ruberoid Co	7,300
Diehl Manufacturing Company	3,600
The Sherwin-Williams Company	3,700
Union Carbide & Carbon Corp	15,500
E. I. Du Pont De Nemours & Co	91,900
Anheuser-Busch, Inc	41,100
Peter J. Schweitzer, Inc.	58,600
Benzol Products Company	5,700
Heyden Chemical Corp	20,500
National Lead Company	79,500
Hercules Power Company	97,600
Pabco Products, Inc	22,000
Total	$1,421,800

REQUIREMENTS AS TO SEWAGE DISCHARGED

Sewage delivered into the facilities of the authority shall not:

(1) Contain materials of such a nature and in such quantities as to impair the hydraulic capacity of such facilities;

(2) Contain materials which might either by chemical or by mechanical action impair the strength or the durability of sewer structures;

(3) Contain substances which may create explosive conditions in such facilities;

(4) Contain any inflammable substances with a flash point lower than 187° F, as determined by the Tagliabue (Tag.) close cup method.

(5) Have a pH index value lower than 4.0;

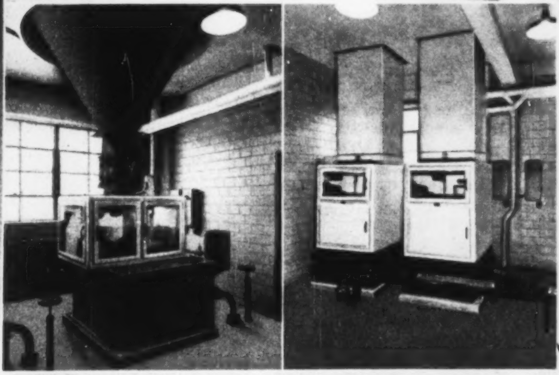
(6) Include any radioactive substance, unless the Authority shall have given written consent to its inclusion; or

(7) Include any garbage other than that received directly into public sewers from residences, unless the Authority shall have given written consent to its inclusion.

FORD MOTOR COMPANY
Water and Waste Treatment Plant
MONROE, MICH.
(COMPLETED IN 1951)

HUBBELL, ROTH & CLARK, INC.
Consulting Engineers
Detroit, Mich.

J. A. MACALARNEY
Director of Plant Engineering
Ford Motor Company



B-I-F Industries Equipment furnished for the Ford Motor Company Water and Waste Treatment Plant:

OMEGA

Loss-in-Weight Gravimetric Feeders and Dissolving Chambers for feeding alum, hydrated lime or sodium metabisulphite.
Belt Gravimetric Feeders with Lime Slakers for feeding quicklime, alum, sodium metabisulphite.
Precision Solution Feeders for feeding sulphuric acid.

BUILDERS-PROVIDENCE

20" Raw Water Controller with Chronoflo Instruments.
10" Filter Effluent Controllers; Loss of Head, Rate of Flow Gauges; Filter Operating Tables.
14" Wash Water Controller with Chronoflo Instruments.
Chronoflo Level Gauges for Clearwell and Remote Elevated Tank.
16" High Service Venturi Tube with Chronoflo Instruments.

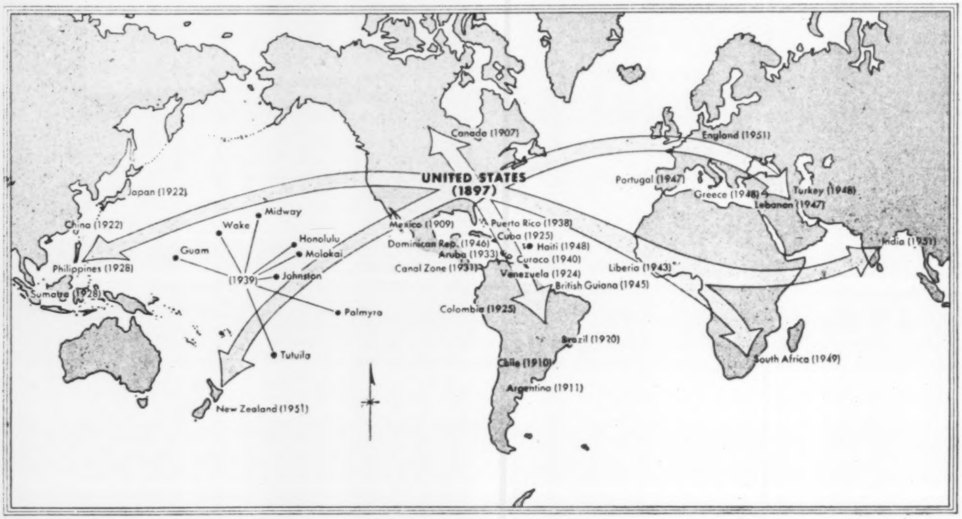
This treatment plant serves a twofold purpose at Ford Motor Company's recently acquired Monroe Plant. Drawing raw water from a canal connecting to Lake Erie, the plant supplies plating and die casting operations with a finished water which has been filtered and chemically treated. In addition, the plant copes with a sizeable cyanide and chromium waste treatment problem, delivering an effluent which complies 100% with Michigan's stream pollution law. The plant is operated under the direction of I. D. Cox, Filtration Plant Supervisor, and Paul H. Philip, Plant Engineer.

Omega Chemical Feeders serve an important function in both phases of this operation. These feeders, installed by Robert Carter Co., of Toledo, Ohio, feed chemicals for coagulation, pH control, and waste neutralization for a water treatment load of 4 MGD and a waste treatment load of 1000 GPM. Due to their dependability, accuracy, and ease of adjustment, the Omega Feeders contribute to the smooth operation of the Monroe Treatment Plant. For Bulletins describing Omega Chemical Feeders, address Builders-Providence, Inc. (Division of Builders Iron Foundry), Providence 1, R. I.

B-I-F INDUSTRIES

OMEGA
THE LAST WORD IN FEEDERS

Ω OMEGA


UNITED STATES (1897)
Canada (1907)
England (1951)
Portugal (1947)
Greece (1948)
Turkey (1948)
Lebanon (1947)
India (1951)
Liberia (1943)
South Africa (1949)
Japan (1922)
China (1922)
Philippines (1928)
Sumatra (1928)
Midway
Wake
Honolulu
Guam
Molokai
(1939)
Johnston
Palmyra
Tutuila
New Zealand (1951)
Mexico (1909)
Puerto Rico (1938)
Cuba (1925)
Dominican Rep. (1946)
Haiti (1948)
Aruba (1933)
Curaco (1940)
Canal Zone (1931)
Venezuela (1924)
British Guiana (1945)
Colombia (1925)
Brazil (1920)
Chile (1910)
Argentina (1911)

Raymond pushes back world frontiers

It's a far cry from a modest foundation business first chartered as the Raymond Concrete Pile Co. of Nebraska to port work in the harbor of Auckland, New Zealand. But the present Raymond Concrete Pile Co. isn't in the least surprised to be working today to increase the capacity of the island dominion's largest port.

Because that's only a part of a far-flung Raymond crew that works in many parts of the world today—completing a steam power station in Puerto Rico, rebuilding oil ports on Lake Maracaibo, working on a seaport and hundreds of miles of road in Colombia, doing other work in Brazil, Cuba.

In Auckland (with Merritt-Chapman, Scott and Fletcher Holdings Ltd.) they're building a new reinforced concrete pier that will increase the port's capacity by 550,000 tons by 1953, providing berthing space for four big ocean freighters. The pier will be 1,200 ft long by 300 ft wide, of earthquake-resistant design.

• Long jump—Developing an original idea for putting down concrete piles into a world-wide engineering organization capable of handling literally any job anywhere—the know-how to deal with intricate problems of foreign construction—is no easy trick.

Alfred A. Raymond himself was a construction man in a rough-and-tumble era when a contractor started with a few dollars and a lot of courage, worked hard to keep ahead of his weekly payroll—and counted himself rich when he could boast a $10,000 bank balance.

But he had an idea concerning foundation work: The concrete piles in use as the 19th century neared its close were generally precast units, driven by drop hammer. Trouble was, a man couldn't see what was happening to his pile as it was driven.

The solution seemed simple to Raymond. Why not drive a hollow shell of steel to the required depth, then fill it with concrete? That way, a man could be assured that the concrete was not damaged during driving, and it was not necessary to predetermine pile lengths, since the pile was literally made in place.

The idea was patented and a company formed in Nebraska (1897) and reorganized in New York City (1902).

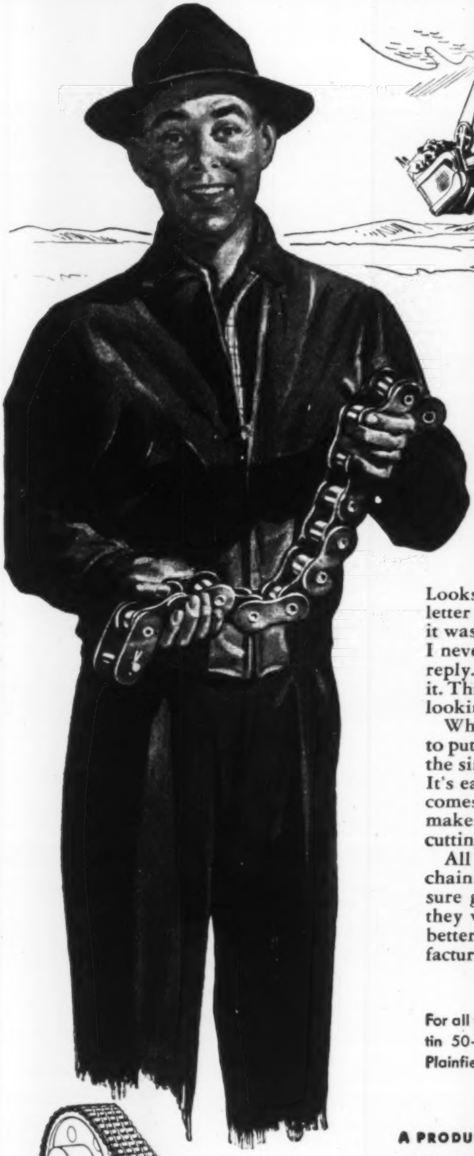
Although Raymond himself stepped out about 1906, his company grew and prospered under uniformly good leadership—prospered so well that in World War II it became the leading contractor in a combine that handled one of the largest single contracts ever awarded: The $338 million of construction work and nearly $1 billion worth of procurement, shipments and supplies that were handled by Pacific Naval Air Base Contractors in the period between 1939 and 1945. (The original group in this project included: Turner Construction Co., Hawaiian Dredging Co. and Raymond. Later, Morrison-Knudsen, Bechtel, Utah and Pomeroy Byrne organizations joined.)

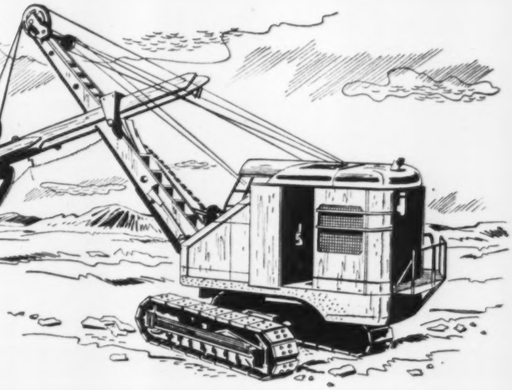
• One way to do it—There are, perhaps, many ways to get that big and that good. Raymond did it through hard work, imagination, and good men.

Two of those men (and there were and are many others of course) constitute the company's present top brass—Maxwell M. Upson, chairman of the board; and William V. (Mr. Mac) McMenimen, president. Mr. Upson, a top engineer who is credited with the design of the earliest group of reinforced concrete industrial buildings in the world (a textile mill in 1905), joined Raymond in 1907 as general manager, chief engineer and director, becoming president in 1930 and chairman of the board in 1946.

McMenimen, a brilliant construction man with an excellent labor-relations record to boot, joined the company in 1911, left it two years later to form his own company (Dock Contractor Co.), re-joined as (vice president and general manager) in 1918, and became president in 1946.

(Continued on page 64)





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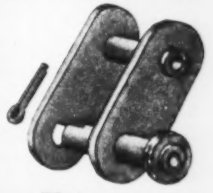
Looks like the fellows at Chain Belt Company really took my letter seriously. When I wrote in complaining about how tough it was to take apart and repair ordinary roller chain in the field, I never expected more than the usual "thanks for your interest" reply. But boy, they really went to work and did something about it. This new "BA" Assembly Roller Chain is just what we've been looking for for years.

Why, it's actually easy to take "BA" apart . . . and just as easy to put it back together again. Just pull out the cotter and drive out the single pin connector . . . that's all . . . only 2 parts to handle. It's easy to make this "BA" up into any length we need, too. It comes in boxes containing sections of various lengths, so we just make up the exact length we need in a few minutes—no more cutting chain for us.

All in all, I'd say "BA" was the biggest development in roller chain in the 20 years I've been in the construction business. I'm sure glad the Chain Belt people took me seriously. Of course, they were thinking about themselves, too. This new "BA" is a better chain, it's going to mean better performance for the manufacturers who use it and more satisfied customers all around.

For all the "BA" details, write for Bulletin 50-6. Chain Belt Company, 301 Plainfield Street, Springfield 2, Mass.



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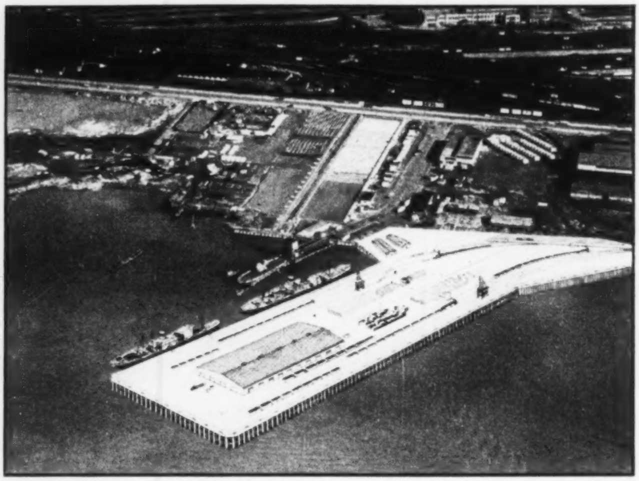

NEW ZEALAND FACILITY—This new reinforced concrete pier will almost double cargo-handling capacity of the port of Auckland. Raymond is building this jointly with Merritt-Chapman & Scott Corp. and Fletcher Const. Co. Ltd.

With such men driving it, the company quickly expanded its activities in the United States, principally as an expert on foundations. It now has 18 U. S. offices, in addition to New York headquarters. It has also been a member of joint ventures on some of the very big U. S. construction jobs—the San Francisco-Oakland Bridge, Boysen Dam, Davis Dam, Morales Dam, Lock 27-Mississippi River.

Raymond's policy, as applying to domestic structures that require foundation services, has been to function as a sub-contractor. Therefore, it declines to appear as a competitive general contractor within the United States except on bridges, wharves and piers similar to those constructed within the last several years for the American Sugar Refinery Company at New Orleans and Gulf Oil at Philadelphia, Pennsylvania R.R. at Baltimore, Humble Oil in Texas, Navy in Norfolk, Va., and Charleston, S. C.

• Out and away—Raymond moved early into foreign fields: Canada 1907; Mexico 1908; Chile 1910; Argentina 1911 where 7,000 Raymond piles were driven. Foreign activities of the Raymond Concrete Pile Co. have taken its men to 28 different countries (see accompanying map) for the execution of over 400 contracts.

The company opened its first foreign office in 1921 in Japan for construction of the Toho electric station at Yokohama; followed quickly with an office in Shanghai (1922); and in Maracaibo, Venezuela (1923).

With that start, Raymond was in business abroad, in a big way. Today it has offices on a permanent basis in Caracas and Maracaibo, Venezuela; Bogota, Colombia; Havana, Cuba; Rio de Janeiro; San Juan; Mexico City; and Auckland, New Zealand.

• Calling the roll—In recent years Raymond has constructed the great $20-million port of Monrovia, built for allied use during World War II and then turned over to the Republic of Liberia; water supply systems for the Dominican Republic; a graceful concrete arch bridge over the Canimar River near Matanzas, Cuba (ENR Jan. 31, p. 32); reconstruction (with Morrison-Knudsen) of Brazil's Rio Doce Railroad; and a power plant in Puerto Rico.

In Venezuela it is building a marine terminal for the Shell Oil Co. on the Paraguana peninsula. This terminal is designed for the mooring of 40,000 ton tankers. On the same peninsula Raymond is building a cargo pier with complete harbor appurtenances for the Government of Venezuela.

On the Orinoco River the company is general contractor for the ore loading docks for the Orinoco Mining Co., and Raymond pile foundation work is being carried out in LaGuaira and Caracas. Also under contract are oil derrick bases in Lake Maracaibo.

Other works completed during the past few years in Venezuela, Curacao

(*Continued on page 66*)

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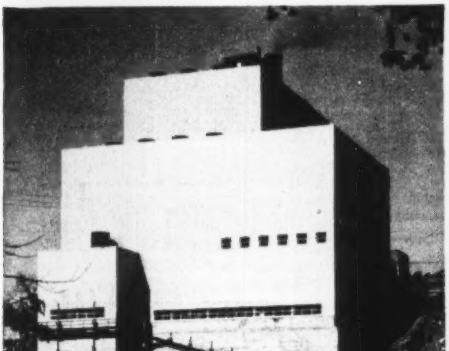

Every feature of a Q-Panel is a desirable feature for powerhouse construction . . . which explains why Q-Panels have captured the powerhouse market.

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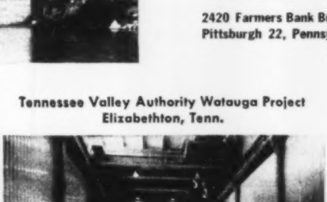

Note clean, quick, dry, safe, curtain-wall construction.

and Aruba include marine terminals, housing projects, power houses, filtration plants, sewage disposal plants, a hospital, office buildings, dry docks, refineries, road work, and complete towns and villages of over 500 separate buildings in addition to roads, water systems and facilities.

In Colombia, Raymond is now engaged in constructing new facilities at the Port of Buenaventura, its 4th contract there in 25 years and rehabilitating and constructing over 600 miles of road from Buenaventura to Taraza for the government. In addition it is installing a pile foundation for an insurance building in Bogota.

In Cuba there is a contract with the government for a vehicular tunnel under the Almendares River to connect the Miramar and Vedado sections of Havana. At San Juan, Puerto Rico, it is erecting the fourth unit of the steam electric generator plant, first constructed in 1948.

The foreign operation has grown so big, in fact, that today more than half of Raymond's employees are employed abroad, and the foundation work on which the company originally built itself now accounts for only about 50% of its total business.

• **A special art**—Sitting at his big desk in Raymond's downtown New York headquarters McMenimen opined that doing construction work abroad is a special art.

"You get jobs abroad very largely on the basis of what you've done before," he said, "so your previous record is your best advertisement. And you make a profit or go broke on your know-how and your knowledge of local markets and conditions.

"But the people who represent you are the keys.

"The man you send out to run the job must handle native personnel, deal with native customs, and be an executive and also a construction man.

"More than that—he can't get thrown off his stride by such a thing as just plain homesickness."

So, added the company president, at least as much thought goes into the selection of personnel as into the bidding and organization of a foreign job. And here Raymond's U. S. operations have proved their value as a training ground for men who may be selected to go overseas.

"To put it another way," McMenimen concluded, "we are a construction service organization—and as such our real stock in trade is men, integrity, and the ability to build things for our clients that will reflect both to their credit and to ours."

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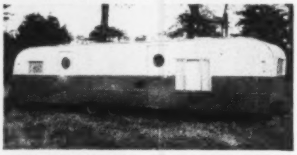

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For Buffalo's Dante Place Project...

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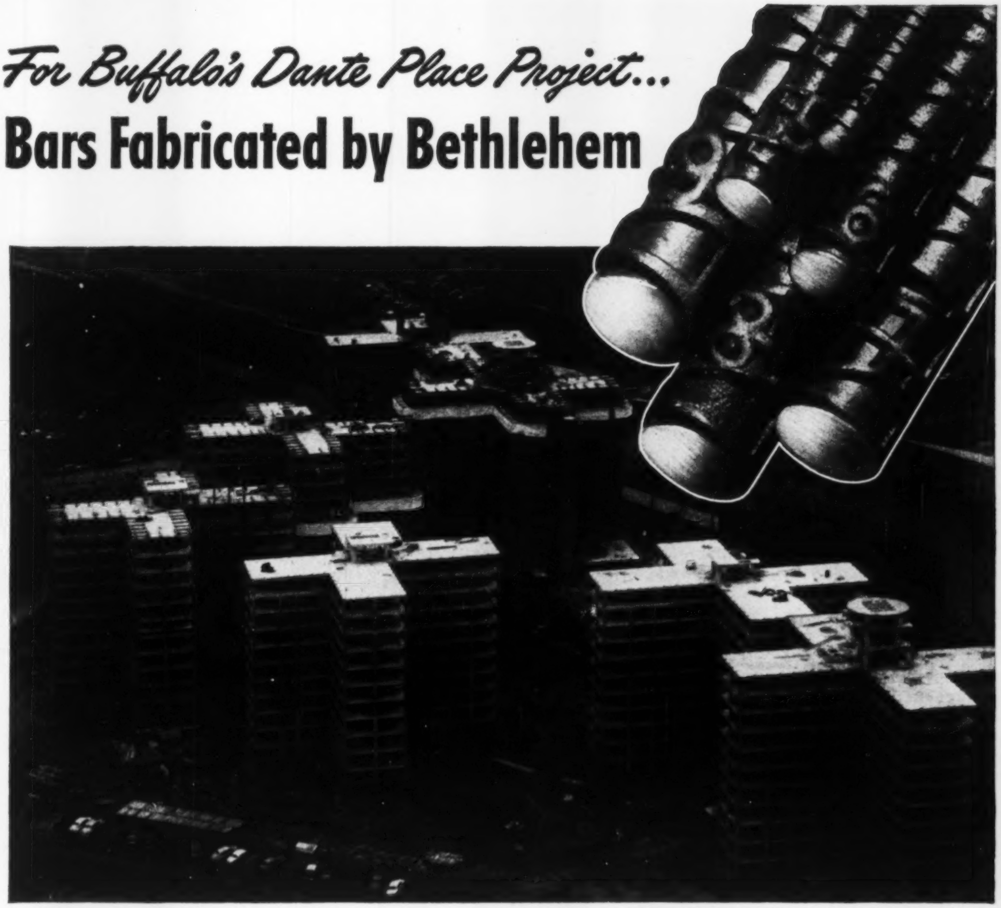

Dante Place Project, now under construction, is a part of Buffalo's redevelopment program in a run-down waterfront neighborhood. *Architect:* Backus, Crane and Love, Buffalo. *Consulting Engineer:* James N. DeSerio, Buffalo. *Contractors:* John W. Cowper Company, Buffalo, and Corbetta Construction Company, Inc., New York City.

Built on a 6½-acre site near the Niagara River's mouth, the $6 million Dante Place Project will offer 616 apartment units in its seven buildings. The concrete superstructures contain 1951 tons of Bethlehem Reinforcing Bars.

These bars—made from 100 pct new-billet steel—were carefully fabricated in Bethlehem's nearby Lackawanna Plant to meet the exact specifications for this impressive project. Sheared to proper length and accurately shaped on bending machines, they reached the job-site bundled, tagged, and with bar lists included.

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MEN AND JOBS

NEW CHIEF ENGINEER of NYC water supply Karl R. Kennison.

Boston engineer appointed chief of NYC water supply

Karl R. Kennison, formerly chief engineer of the Boston Metropolitan District Water Supply Commission, has taken a position as chief engineer of the New York City Board of Water Supply.

In this position he will be in control of a system that distributes about 1,200 mgd.

Kennison quit the Boston post two years ago with two other officials charging "politics and inefficiency."

He is a graduate of MIT. His first position was with the Providence Water Supply Board as an assistant engineer in the design department.

He is a member of the ASCE, the AWWA and the New England Sewage Works Assn.

Engineers assigned new Oak Ridge posts

In a general reorganization of the Atomic Energy Commission's Oak Ridge Operations office, Ned Williams, former director of the Oak Ridge Office of Production and Engineering, was named to head the newly created Construction Area unit. Under the new plan, all construction activities at the three AEC area plants and in the community will be centralized. William A. Bonnet will serve as deputy to Williams. The new post of assistant manager, Construction and Engineering will be filled by Robert J. Brown with C. G. Sonnen as deputy. Reporting to Brown will be the Construction division headed by William J. Hayes and the Engineering division with LeRoy H. Jackson as director.

Careers . . .

• **Appointed**—**Francis S. Friel,** President, Albright & Friel, Inc., Philadelphia, has been named to the Pennsylvania State Registration Board for Professional Engineers. Friel recently received appointment to the U. S. executive committee of the International Committee on Large Dams . . . **Col. Herbert D. Vogel,** Engineer of Maintenance and Lieutenant Governor of the Panama Canal, is now Southwestern Division Engineer at Dallas, Tex. . . Designated as acting executive director of the Pennsylvania General Authority and the State Highway and Bridge Authority is **Warren W. Holmes** . . . **Col. Aldo H. Bagnulo** will assume duties as district engineer at St. Paul, Minn., in early June . . . **Randy H. Hamilton** has resigned as city manager of Carolina Beach, N. C., to become Washington D. C. director of the American Municipal Association . . . **Philip S. Donnell** is new supervisor of San Antonio's utilities following his resignation as vice president of Oklahoma A & M . . . Oceanside, Calif., City Manager **James Neal** has resigned to take over a similar post in Vancouver, Wash . . . **Tom McGovern,** a former director of the National Association of Homebuilders, has joined the Housing Research Foundation, Essar Ranch, Tex . . . **Joseph B. Diamond,** attorney and licensed professional engineer has opened law offices in New York City's Bar Building.

• **Elected**—New chairman of the Delaware State Highway Commission is **J. H. Tyler McConnell** of the Hercules Powder Co . . . **Andrew O. Stilwell** has been named president of the Engineering Society of Buffalo, Inc. . . . The Metropolitan Section of the ASCE (centered in the New York City area) elected **William L. Hanavan** its president. Hanavan is the chief engineer of Edwards, Kelcey and Beck, and Edwards & Kelcey, Assoc., consulting engineers. Other officers elected were: **John P. Riley, Alfred Hedefine, William J. Shea, Frank C. Mirgain, Jewell M. Garrelts, James H. Griffin** and **Richard Hazen** . . .

• **Honored**—**Miles I. Killmer,** vice-president and general manager of Mason and Hanger, N. Y., and long active in planning and construction of major tunnels in the New York area, received a distinguished alumnus award from Pennsylvania State College President Milton Eisenhower at the college's Honors Day program . . . For his development of a simplified method for highway surveying in broken terrain, **George A. McKinley,** senior locating engineer with the North Carolina highway department this week received the high commissions' 1951 D. B. McCrary award . . . **Benjamin G. Schreiner** and **Peter G. Rae** of the Waterways Experiment Station were jointly awarded $275 by the Army department for their suggested design of a test cart to carry on landing mat studies for the Air Force . . . Honorary membership in the Engineering Institute of Canada was awarded the late Ernest A. Cleveland, former chief commissioner of the Greater Vancouver Water District and chairman of the Vancouver and District's Joint Sewage and Drainage Boards.

California keeping Durkee as public works director

Governor Earl Warren, Calif., apparently has given up any idea of getting an engineer to take the job of State Director of Public Works, putting Frank B. Durkee, lawyer and former newspaperman, in a strong position to keep the job.

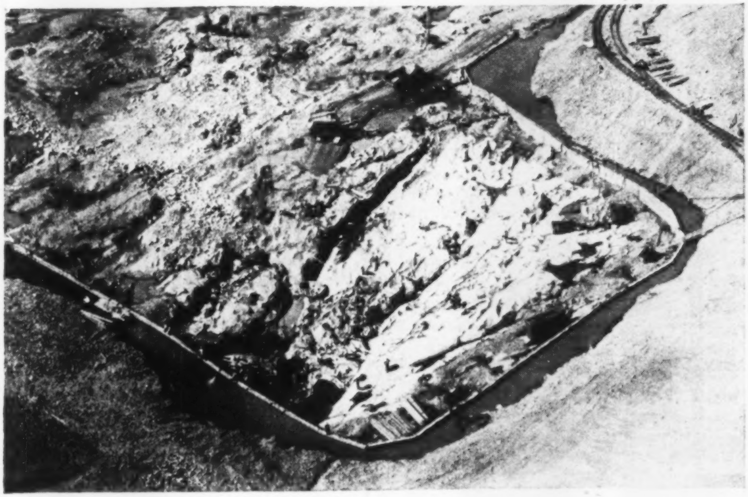
Durkee has headed the department on an interim basis since the retirement of the late Charles H. Purcell last Aug. 1. Purcell, the only engineer ever appointed head of the department, had served since 1943.

FRANK B. DURKEE, newsman and lawyer may remain as director of public works.

KEEPS EXCAVATION PROJECT ON SCHEDULE

Assures good breakage . . . quick removal of rock by using Du Pont Explosives

Powerhouse area excavation for the Chief Joseph Dam on Columbia River near Bridgeport, Washington, just before typical blast. Work now in progress on the $26,000,000 contract recently awarded to the Chief Joseph Builders of San Gabriel, Calif., (Arundel, Dixon, Hunkin-Conkey, American P. & C.) covers removal of first-stage cofferdam, excavation for the dam and powerhouse, production of concrete aggregates, and construction of the concrete dam and appurtenances. Keeping the job on schedule demands good breakage of rock, to permit speedy removal and make way for the next step in construction.



North side of foundation. The Chief Joseph Dam, a gravity-type concrete structure, 220 ft. high with a spillway of 922 ft., will become part of the world's second largest hydroelectric project. To speed the removal of over 2,000,000 cu. yds. of rock, the Chief Joseph Builders rely on Du Pont Special Gelatin 40%, Red Cross Extra 40% and "Gelex" No. 1. In many cases, Du Pont "MS" Delay Electric Blasting Caps are used to insure maximum fragmentation and prevent back break. Uniformity of Du Pont Explosives, and the excellent service that goes with them, make these products a dependable choice for every type of blasting operation.

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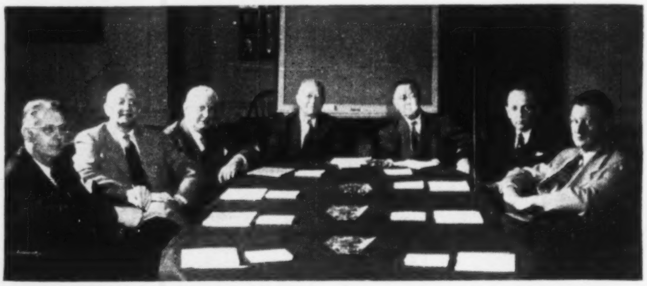
MEETINGS



CIVIL ENGINEERS AND ARCHITECTS—At the recent first meeting in Washington, D. C., of the joint committee of the American Society of Civil Engineers and the American Institute of Architects mutual problems were discussed. Pictured above are the men who inaugurated a joint project expected to produce valuable results for both organizations and for all members of the two professions. A united front is desired on legislation, professional education, employment, structural design, public works, engineer-architect contracts and fees, and many other matters affecting the construction industry. Left to right around the table are G. Brooks Earnest, Joseph Ehlers, Alvin E. Harley, Craig P. Hazelet of the ASCE; and Leonard H. Bailey, Mason G. Lockwood, and Edmund R. Purves of the AIA.

U. S. water policy needs definition

W. W. Horner, of St. Louis, chairman of the National Water Policy Panel of the Engineers Joint Council, May 19 said the Army Corps of Engineers and the Bureau of Reclamation should end their jurisdictional and policy squabbles over waterway projects and join together to help Congress come up with a "clear policy" on water resource and river developments.

Horner spoke to members of the American Planning and Civic Association, meeting at Louisville, Ky., with the National Citizens Conference on Planning and Resources.

He said the American people are waiting for Congress to make up its mind on basic problems relating to river development.

Whether in the future the federal government of local governments will direct water resource planning and whether the cities, industries, citizens and other groups that benefit from irrigation, flood control, or dam projects should pay for them and to what extent.

Under the present system, he said, different policies prevail. Congress has set up one set of rules for projects sponsored by the Corps of Engineers and another for those under the Reclamation Bureau.

Horner criticized the "Cooke Report" (made by the President's water resource policy commission) for being "throughout based upon an assumption of federal domination of all water-resource planning." He added that the joint council he represents—composed of six professional engineering and allied societies—contends this is "not necessarily" the federal government's job. Much planning and financing could be done by local governments, he said.

Before any more federal tax monies are spent on water-resource projects, "sound accounting" must show that the benefits in dollars from each project "should be materially in excess of a well-founded estimate of costs." Neither he nor EJC criticizes the Corps of Engineers or the Reclamation Bureau for the overlapping jobs their agencies are doing. The fault lies in Congress for refusing to draw the line clearly between the organizations.

Canada architects favor Canadian plans, designs

Among the big headaches of Canadian architects are use of U. S. designs and employment of U. S. technicians and engineers on Canadian projects, and the migration of Canadian-trained architects and engineers to the United States.

At its recent 45th annual meeting in Vancouver, B. C., the Royal Architectural Institute of Canada determined to take all practical steps to keep technically-trained university graduates in Canada, and to put up barriers against importation of U. S. designs and engineering plans.

OBITUARIES

Wallace P. Beardsley, 54, a 1919 Cornell alumnus, who between 1919 and 1924 worked as a structural engineer with Thompson & Benges, the Semet-Solvay Co. and the Truscon Steel Co., died at Auburn, N. Y., May 18. He was an engineer for Syracuse, N. Y., and wrote that city's building code. From 1924 to 1944 he was project manager and field representative for Shreve, Lamb & Harmon at the Sampson, N. Y., Naval Training Station.

Llewellyn N. Edwards, 78, retired bridge builder, died May 13 in Washington, D. C. He had served as structural engineer in the U. S. Bureau of Public Roads. He received his engineering degree in 1898 from the University of Maine. He did bridge work for the Boston and Maine R.R. and the Chicago Northwestern R.R., and was structural engineer for the Grand Trunk Railway of Canada. At the time of his death, he was completing a manuscript on "The History and Evaluation of Early American Bridges."

Charles W. Palmer, a retired registered professional engineer, died May 8 at Wyncote, Pa. For many years he was in hydroelectric and railroad development as well as in various engineering capacities with Philadelphia.

Lawrence W. North, 53, superintendent of construction for the Stone Construction Co. at Milwaukee, Wis., died there May 7. A civil and construction engineer, he was employed by the Wisconsin highway department and as an inspector of street construction for the Milwaukee before joining the Stone firm.

Harry O. Garman, 72, a retired consulting engineer of Indianapolis, Ind., died there May 9. He was a 1920 graduate of Purdue University. He taught there for 9 years and from 1907 to 1913 he was chief engineer of the Indiana R. R. Commission and then chief engineer of the Indiana Public Utilities Commission.

Thomas C. Jeffers, 62, chief of projects and design for the National Capital Park and Planning Commission, died May 11 in Washington, D. C. Mr. Jeffers spent his early years working for the Louisville-Nashville Railroad. He was a member of the original committee which developed the present District recreational park plan. He also assisted in the preparation of plans for the George Washington Memorial Parkway and the Baltimore-Washington Parkway.

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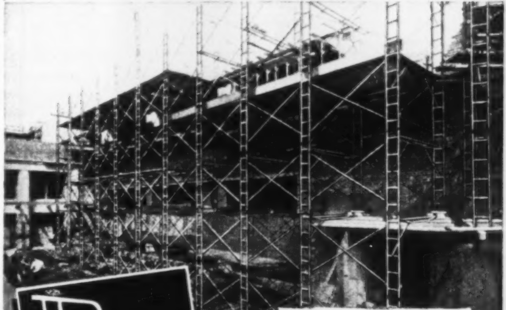

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DESIGN ENGINEER with 5 to 10 years experience in the design of steel Industrial and Commercial structures and concrete foundations. This position is permanent, location in Central Penna., with a starting salary of $6500.00 per year. P-4390, Engineering News-Record.

POSITIONS VACANT

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EXPERIENCED ENGINEER Wanted to take charge of field work large water plant project. Location Middle West. Apply in confidence, giving salary desired, experience record, age and when available. P-4209, Engineering News-Record.

CIVIL ENGINEER, young, with some construction experience, knowledge of soil mechanics and ground water flows desirable, salary commensurate with ability. Location Midwest. Reply in full to P-4279, Engineering News-Record.

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GENERAL SUPERINTENDENT — Marine and Heavy Construction. Permanent position. Location Southern New England. P-3974, Engineering News-Record.

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MATERIALS ENGINEER—C.E. experienced in structural materials, permanent, good salary and opportunity. Give full information. P-4200, Engineering News-Record.

MECHANICAL ENGINEER to assist in supervision maintenance of fleet of Whitcomb Diesel Electric Locomotives, as well as general railway repair shops, large copper company Chile, South America. 3-year contract. Transportation both ways and salary while traveling paid by Company. In reply give complete details. P-4382, Engineering News-Record.

STRUCTURAL DESIGN Engineer. Must be experienced and capable of assuming design responsibility in steel and reinforced concrete for large commercial and industrial buildings. Real opportunity for right man with large Architect-Engineer office located in the Pacific Northwest. P-4131, Engineering News-Record.

STRUCTURAL & MECHANICAL Design Work wanted by small engineering concern with personnel registered in several Southern states. Fuel Efficiency Engineering Co., Birmingham 1, Ala.

(Continued on page 75)

CIVIL ENGINEER

The Engineering Department of the City of Fort Lauderdale, Florida, has a vacancy for a graduate civil engineer. The duties are varied, covering all phases of office and field work. The present salary range goes up to $5200, and the starting salary will depend on the qualifications of the individual. Applications may be obtained from the Civil Service Department, City Hall, Fort Lauderdale, Florida.

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P-4319, Engineering News-Record
330 W. 42 St., New York 36, N. Y.

POSITIONS VACANT

(Continued from page 74)

STRUCTURAL OR Architectural Engineer for employment in engineering department of general contractor. Experience in structural or architectural design of industrial and commercial buildings essential. Unlimited opportunity with progressive middle-west contractor. Apply by letter stating details of education, experience, availability, and salary desired. P-4367, Engineering News-Record.

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WANTED—GRADUATE Civil Engineer, some experience in the structural and housing field preferred, by long established engineering promotional and educational organization, to be a representative in the southern New Jersey area. Age 25 to 40. Give resume of education, engineering experience, and salary requirements in reply. P-4330, Engineering News-Record.

WANTED IMMEDIATELY—Civil Engineer experienced in computing property line data in engineering office, for old established firm, near New York City. Steady work for the right man guaranteed. Write full qualifications, age, references and salary requirements. P-4201, Engineering News-Record.

YOUNG CIVIL Engineering Graduate with some experience in maintenance of track and track equipment for Railroad Department large Copper Company Chile, South America. 3-year contract. Transportation both ways and salary while traveling paid by Company. In reply give complete details. P-4379, Engineering News-Record.

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(Continued on page 76)

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Must have real ability and experience in heavy machinery and refinery equipment installation and steel erection, and be able to organize and supervise all field work of varied nature employing approximately 200 riggers, ironworkers, millwrights and operating engineers.

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EMPLOYMENT SERVICE

(Continued from page 75)

WANTED—ENGINEERS, Designers, Draftsmen-Structural, Piping, M.E., C.E., E.E. and Industrial, also Teachers and Chemists. Cleveland Engineering Agency, 2132 E. 9, Cleveland.

POSITIONS WANTED

ARCHITECT & Engineers — Construction Superintendent available. Excellent references. PW-4371, Engineering News-Record.

BUILDING CONSTRUCTION Executive thoroughly experienced estimating, buying subcontracts, materials, etc., solicitation of new business and field management. PW-4393, Engineering News-Record.

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CHIEF ACCOUNTANT, BCS Degree. 10 yrs. diversified experience in Construction. Accounting. Desires responsible position with progressive company. PW-4258, Engineering News-Record.

CHIEF ENGINEER for structural steel fabricating company, long experience estimating, design and detailing all types structures. Well qualified for supervisory duties; interested making connection with progressive and well established firm. PW-4324, Engineering News-Record.

CONCRETE SUPERINTENDENT 29 years in concrete field Batch, crushing, and precast plants. Placing and handling of concrete. Heavy Construction, foreign or domestic. PW-4150, Engineering News-Record.

CONSTRUCTION EXECUTIVE-Project Manager Registered Prof. Eng. C.E. Responsible management all phases general contracting. Experienced difficult foundations—caissons—hydraulic structures—cofferdams; Industrial buildings; multiple housing; hospitals; public works. Qualified Gen'l Superintendent estimating, purchasing, subcontract management. Present location midwest; will consider location in U. S. only. PW-4117, Engineering News-Record.

EQUIPMENT SUPERINTENDENT, age 40. Twenty years experience in Heavy Construction. Diesel and Allied Equipment. Marine and Heavy Earth Moving. Desires position, Domestic or Foreign. PW-4166, Engineering News-Record.

GENERAL SUPERINTENDENT 52, with a thorough experience in that capacity, on public, commercial and industrial work, including school, hospitals, housing, power plants and government projects. Concrete and masonry specialist, with ability to minimize overhead and construction costs. References. PW-4343, Engineering News-Record.

NETHERLANDS CIVIL Engineer; 30, married, experienced in reinforced & prestressed construction, estimating & structural design as contractor's assistant, energetic and able in contact with all groups; worked in Europe, West Indies, Argentina, traveled in Venezuela & Colombia, speaks & writes Spanish & French fluently, desire position as representative of important company or other responsible position with established organization. Please write M. W. Gauw, c/o S.E.L. Maduro & Sons Inc., Curacao, Neth. Antilles.

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OFFICE MANAGER—Accountant: 10 yrs. experience in U. S. plus 10 yrs. on engrg. and construction projects in Latin America. Fluent Spanish. Handle office management, accounting, personnel, legal liaison work. Age 42. Health and record excellent. PW-4366, Engineering News-Record.

PROFESSIONAL ENGINEER with 40 years experience on power house design, process piping, heating or ventilating general industrial layout work, capable of taking complete charge, desires position in the Cleveland area. PW-4273, Engineering News-Record, 330 W. 42 St., N.Y.C. 36.

SENIOR STRUCTURAL Engineer, graduate C.E. registered with National Bureau, licensed in 3 states, over 25 years experience in design and construction of industrial buildings, bridges, hydro-electric developments, heavy engineering structures; office and field supervision. 10 years foreign service, knows languages. Desires permanent connection with growing concern. PW-4364, Engineering News-Record.

STRUCTURAL ENGINEER: 27, 5½ years experience bridge and building design. Desires position in Sales or similar field. Will consider responsible position with consultant involving field and office work. PW-4313, Engineering News-Record.

SUPT.-GEN. Supt. 30 years thorough experience in heavy construction including highways, heavy excavations, pile driving, bridges, airports, flood control. Mass concrete construction. Capable organizer and producer. Highest references. Available at once. PW-4327, Engineering News-Record.

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W4354, Engineering News-Record
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- 1—Chicago Pneumatic Air Compressor 315 C.F. Caterpillar Diesel D-8800 Power Unit

Above located in Wyoming

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FS-3474, Engineering News-Record
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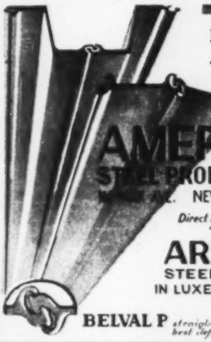

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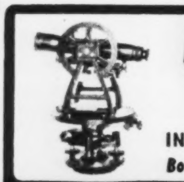

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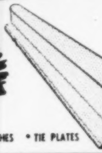

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20 inch
24 inch and other sizes
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OFFICIAL PROPOSALS

APPEAR HERE EACH THURSDAY. PROPOSAL ADVERTISEMENTS ACCEPTED UP TO 10:30 A.M. FRIDAY FOR THE ISSUE DATED THE FOLLOWING THURSDAY

Bids: June 3, 1952

Dow Pivot Valves

CONTRACT 434

SEALED BIDS will be received by the Board of Water Supply, at its offices, thirteenth floor, 120 Wall Street, New York City, until 10:00 A.M., Eastern Standard Time, on Tuesday, June 3, 1952, for Contract 434, for furnishing, testing and delivering two 24-inch manually operated bronze Dow pivot valves, and pipe couplings, complete in every respect, for installation in the East Delaware intake chamber of the Delaware aqueduct, all as set forth in the specifications.

No bid will be received and deposited unless accompanied by a certified check upon a National or State bank, drawn and made payable to the order of the Comptroller of the City of New York, in the amount of one thousand five hundred dollars ($1,500.00), for the proper execution of the contract.

At the above place and time the bids will be publicly opened and read. Pamphlets containing information for bidders, forms of bid and contract, specifications, requirements as to surety, etc., can be obtained in Room 1311, at the above address, upon application in person or by mail, by depositing the sum of five dollars ($5.00) in cash or its equivalent for each pamphlet. Within 30 days following the award of contract or rejection of bids, the full amount of such deposit will be refunded for each pamphlet submitted as a bid and a refund of four dollars ($4.00) will be made for each other pamphlet returned in acceptable condition. For further particulars, apply at the office of the Chief Engineer at the above address.

IRVING V. A. HUIE, President, RUFUS E. McGAHEN, EDWARD C. MAGUIRE, Commissioners, Board of Water Supply; RICHARD E. BURKE, Secretary.

Bids: June 10, 1952

Route S-26, Section 1C, and Route 25, Section 4E

STATE OF NEW JERSEY
STATE HIGHWAY DEPARTMENT
TRENTON

NOTICE IS HEREBY GIVEN that sealed bids will be received by the State Highway Commissioner for:

Construction of Route S-26, Section 1C, Bridge & Approaches at Livingston Avenue Connection, North Brunswick Township, Middlesex County (Federal Project No. AUI-95(22), and Route 25, Section 4E, Intersection Revision at Route S-28, City of New Brunswick, Middlesex County. Length of Rt. S-26, Sec. 1-C = 0.317 mile. Length of Rt. 25, Sec. 4-E = 0.128 mile. The principal items of construction are:

Roadway Items

Estimated:

27,849	cu. yds. Roadway Excavation—Earth
7,942	sq. yds. Pavement Excavation
8,628	cu. yds. Borrow Excavation
8,082	sq. yds. Waterbound Macadam Base Course
8,082	sq. yds. Waterbound Macadam Inter. Course
2,093	sq. yds. Mod. Pen. Mac. Inter. Course
2,093	sq. yds. Macadam Base Course
1,093	tons Bituminous Concrete Surface Course
4,644	sq. yds. 10" Rein. conc. Pavement Surface
2,665	sq. yds. 10" Plain Conc. Pavement
1,368	lin. ft. Rein. Concrete Pipe
471	lin. ft. Cast Iron Culvert Pipe
13,504	lin. ft. Concrete Curb
3,569	lin. ft. Pipe Conduit, Electrical
17	Electric Sign Installations
	Bridge Items
240	cu. yds. Class B Concrete in Structures
1,063	cu. yds. Class C Concrete in Structures
60,220	lbs. Reinforcement Steel in Structures
142,500	lbs. Structural Steel

Bids for the above will be received at the office of the State Highway Department, Assembly Room, Room 140, in the State Highway Office Building, 1035 Parkway Avenue, Trenton, New Jersey, on Tuesday, June 10, 1952, at ten o'clock (10:00 A.M. — EASTERN STANDARD TIME), eleven o'clock (11:00 A.M.—DAYLIGHT SAVING TIME), and will be opened and read immediately thereafter.

The receipt and opening of bids is subject to the proper qualification of the bidder in accordance with the provisions of the prequalification law and the regulations adopted by the State Highway Commissioner. Bidders must also submit a revised financial statement and statement of plant and equipment with their bid.

NOTE: Route 26, Section 1-C, is a "Federal Aid Project" authorized by the provisions of Title 27 of the Revised Statutes of New Jersey and supplements and by P. L. 769, 81st Congress, and is to be performed in accordance with the special provisions and requirements of the Bureau of Public Roads, Department of Commerce, as outlined in the specificatoins, which provisions require that labor be employed from lists furnished by the State Employment Service, 94 Carroll Place, New Brunswick, N. J. The attention of bidders is directed to the special provisions covering subletting or assigning the contract. The minimum wage paid to all common labor employed on this contract shall be $.75 per hour. The minimum wage paid to all intermediate grade of labor employed on this contract shall be $1.00 per hour. The minimum wage paid to all skilled labor employed on this contract shall be $1.50 per hour.

Drawings, specifications and form of bid, contract and bond for the proposed work are on file in the office of the State Highway Department, Trenton, N. J., and may be inspected by prospective bidders during office hours. Plans will be furnished on a deposit of Ten Dollars ($10.00) for each set of plans upon application to A. Lee Grover, Chief Clerk, State Highway Department, Room 139, State Highway Office Building, 1035 Parkway Avenue, Trenton, N. J. Bids must be made upon the standard proposal forms in the manner designated in the standard State Highway specifications and must be enclosed in sealed special addressed envelopes bearing the name and address of the bidder and work bid upon on the outside, and must be accompanied by a certified check drawn to the order of the Treasurer of the State of New Jersey for not less than ten percent (10%) of the amount of the bid, provided that the said certified check shall not be less than $500.00 nor more than $20,000.00 and must be delivered at the above place on or before the hour named. Copies of the standard proposal forms and special addressed envelopes will be furnished on application. Bids not enclosed in sealed special addressed envelopes will be considered informal and will not be opened. The right is reserved to reject any or all bids.

Signed: R. J. Abbott
State Highway Commissioner

Bids: June 10, 1952

Electric Sign System, Rt. 28-29 Connection, Sec. 1

STATE OF NEW JERSEY
STATE HIGHWAY DEPARTMENT
TRENTON

NOTICE IS HEREBY GIVEN that sealed bids will be received by the State Highway Commissioner for:

Electric Sign System on Route 28-29 Connection, Section 1, Township of Bridgewater and Borough of Somerville, Somerset County. The principal items of construction are:

Estimated:

4	Neon Channel Letter Signs
4	Steel Supporting Poles
2	Supporting Steel Frames
300	lin. ft. 2½" Dia. Gen. G.W.I. Conduit
20	cu. yds. Concrete Foundations
500	lin. ft. Trenching & Backfill

Bids for the above will be received at the office of the State Highway Department, Assembly Room, Room 140, in the State Highway Office Building, 1035 Parkway Avenue, Trenton, New Jersey, on Tuesday, June 10, 1952, at ten o'clock (10:00 A.M.—EASTERN STANDARD TIME), eleven o'clock (11:00 A.M.— DAYLIGHT SAVING TIME), and will be opened and read immediately thereafter.

The receipt and opening of bids is subject to the proper qualification of the bidder in accordance with the provisions of the prequalification law and the regulations adopted by the State Highway Commissioner. Bidders must also submit a revised financial statement and statement of plant and equipment with their bid.

Drawings, specifications and form of bid, contract and bond for the proposed work are on file in the office of the State Highway Department, Trenton, New Jersey, and may be inspected by prospective bidders during office hours. Plans will be furnished on a deposit of Ten Dollars ($10.00) for each set of plans upon application to A. Lee Grover, Chief Clerk, State Highway Department, Room 139, State Highway Office Building, 1035 Parkway Avenue, Trenton, New Jersey. Bids must be made upon the standard proposal forms in the manner designated in the standard State Highway specifications and must be enclosed in sealed special addressed envelopes bearing the name and address of the bidder and work bid upon on the outside, and must be accompanied by a certified check drawn to the order of the Treasurer of the State of New Jersey for not less than ten percent (10%) of the amount of the bid, provided that the said certified check shall not be less than $500.00 nor more than $20,000.00 and must be delivered at the above place on or before the hour named. Copies of the standard proposal forms and special addressed envelopes will be furnished on application. Bids not enclosed in sealed special addressed envelopes will be considered informal and will not be opened. The right is reserved to reject any or all bids.

Signed: R. J. Abbott
State Highway Commissioner

Bids: June 4, 1952

New Jersey State Hospital

Notice is hereby given that sealed proposals will be received in the office of the Director, Division of Purchase and Property, Room 318, State House, Trenton 7, New Jersey, for the following:

General work, structural steel and miscellaneous iron, plumbing and drainage, heating and ventilating work, electrical work and elevator for Hospital Building for Senile Patients at the New Jersey State Hospital, at Trenton, New Jersey.

Bids for the above will be received at the office of the Director, Division of Purchase and Property, State House, W. State St., Trenton 7, New Jersey on Wednesday, June 4, 1952 at one (1:00) E.S.T. and will be opened and read immediately thereafter. Bids must be made on the standard proposal form, and must be accompanied by a certified check drawn to the order of the Treasurer of the State of New Jersey for not less than 5% of the amount of the bid, cash, in the amount of 5% of the bid or a bid bond in the amount of 5% of the bid, and must be delivered at the above place on or before the hour named, as no bid will be accepted after the hour specified. Bids not submitted on the standard proposal form or enclosed in other than special addressed envelopes will be considered informal and will be rejected. The Director reserves the right to reject any and all bids and to award contract in part or whole if deemed to the best interests of the State to do so. The successful bidder will be required to qualify for surety bond in the full amount of the contract, of a company authorized to do business in the State of New Jersey.

Plans and specifications, form of bid, contract and bond for the proposed work are on file and may be obtained upon application to the Director, Division of Purchase and Property, State House, Trenton, New Jersey on deposit of twenty-five dollars ($25.00) for each set; this amount to be refunded to the bidder upon receipt of same in good condition within 30 days after the award of the contract.

DEPARTMENT OF THE TREASURY
Division of Purchase and Property
Fred V. Ferber, Director.

(Continued on the following page)

OFFICIAL PROPOSALS

Bids: June 16, 1952

George Washington Bridge

THE PORT OF NEW YORK AUTHORITY
CONNECTION WITH PALISADES
INTERSTATE PARKWAY
STAGE I
CONTRACT GWB-140.002

Sealed proposals for the construction of Stage I of the connection with Palisades Interstate Parkway at the New Jersey approach to the George Washington Bridge will be received at the office of the Chief Engineer of The Port of New York Authority, Room 1100, 111-8th Ave., New York 11, until 11:00 A.M., Monday, June 16, 1952, at which time and place said proposals will be opened and read.

Contract documents may be seen at the office of the Engineer of Materials, Room 1110, and copies will be furnished upon deposit of $10 per set. Deposit to be delivered to the Treasury Department, Room 1001, where a receipt in duplicate will be issued. A copy of the receipt should then be delivered to the Engineer of Materials who will furnish the contract documents. The deposit will be remitted if the documents are returned in good condition, not later than 30 days after the opening of proposals.

THE PORT OF NEW YORK
AUTHORITY
Howard S. Cullman, Chairman
New York, May 29, 1952

Bids: June 11, 1952

Air Conditioning for Ticket and Accounting Offices

THE PORT OF NEW YORK AUTHORITY
PORT AUTHORITY BUS TERMINAL
CONTRACT BT-110.058

Sealed proposals for furnishing and installing air conditioning and ventilation for the Ticket and Accounting offices in the Port Authority Bus Terminal will be received at the office of the Chief Engineer of The Port of New York Authority, Room 1100, 111-8th Ave., New York 11, until 11:30 A.M. Wednesday, June 11, 1952, at which time and place said proposals will be opened and read.

Contract documents may be seen at the office of the Engineer of Materials, Room 1110, and copies will be furnished upon deposit of $10 per set. Deposit to be delivered to the Treasury Department, Room 1001, where a receipt in duplicate will be issued. A copy of the receipt should then be delivered to the Engineer of Materials who will furnish the contract documents. The deposit will be remitted if the documents are returned in good condition, not later than 30 days after the opening of proposals.

THE PORT OF NEW YORK AUTHORITY
Howard S. Cullman, Chairman
New York, May 29, 1952.

Bids: June 26, 1952

Mental Hospital, New Jersey

Notice is hereby given that sealed proposals will be received by the State of New Jersey for work in connection with a construction project encompassing sewerage system for Medical-Surgical-Reception Building, Kitchen and Dining Building, Boiler House, Laundry Building and miscellaneous service buildings at the Fourth Mental Hospital, Winslow Township, Camden County, New Jersey.

Bids will be received in the office of the Director, Division of Purchase and Property, Room 318, State House, Trenton 7, New Jersey between the hours of 1 P.M. and 2 P.M. Daylight Saving Time on Thursday, June 26, 1952, and will be opened and read in public immediately thereafter. No bid received after 2 P.M. will be accepted.

Separate bids will be received for:
Sewerage system for Medical-Surgical-Reception Building, Kitchen and Dining Building, Boiler House, Laundry Building and miscellaneous service buildings at the Fourth Mental Hospital, Winslow Township, Camden County, New Jersey.

Bids must be made on prepared "Form of Proposal" and must be accompanied by a certified check drawn to the order of the Treasurer of the State of New Jersey for not less than five (5) per cent of the total base bid or by a bid bond in like amount.

Bids not submitted on prepared "Form of Proposal" sheets or enclosed in other than specially addressed envelopes will be considered informal and will be rejected.

Form of Proposal, Instructions to Bidders, Contract Documents, Drawings and Specifications may be examined at office of the Architect, Epple & Seaman and Leslie M. Dennis, Associate Architect, 901 Broad Street, Newark, New Jersey or at the office of the Director, Division of Purchase and Property, State House, Trenton, New Jersey.

The Director reserves the unrestricted right to accept or reject any or all bids or to waive informalities therein.

The successful bidders will be required to qualify for surety bond in full amount of contracts, of a company authorized to do business in the State of New Jersey.

No bid shall be withdrawn for a period of two (2) calendar months subsequent to opening of bids, without the consent of the State of New Jersey.

One set of complete documents for the proposed work may be obtained upon application to the Architect on deposit of a certified check in the amount of $50,00 drawn to the order of the Treasurer of the State of New Jersey. This deposit will be refunded to any bidder upon returning such set in good condition within ten (10) days after opening bids.

A. Financial and Experience Questionnaire must be submitted to the Director of the Division of Purchase and Property, prior to submission of bids.

DEPARTMENT OF THE TREASURY
Division of Purchase and Property
Fred V. Ferber, Director

Bids: June 12, 1952

Installation of Battery Charging Equipment

THE PORT OF NEW YORK AUTHORITY
Contract O & M 157

Sealed proposals for the installation of battery charging equipment in Building No. 139, Port Newark, New Jersey, will be received at the office of the Director of Purchase of The Port of New York Authority, Room 1402, 111-8th Ave., New York 11, until 11:00 A.M., Thursday, June 12, 1952, at which time and place proposals will be opened and read.

Contract documents may be obtained at the office of the Director of Purchase.

THE PORT OF NEW YORK
AUTHORITY
Howard S. Cullman, Chairman
New York, May 29, 1952

Bids: June 10, 1952

Approach and Exit Lanes at No. & So. Midway

PENNSYLVANIA TURNPIKE
COMMISSION

Harrisburg, Pennsylvania

Sealed proposals will be received by the Pennsylvania Turnpike Commission through the Chairman, 11 North Fourth Street, Harrisburg, Pennsylvania until 10:00 A.M. (Eastern Daylight Saving Time), the 10th day of June 1952, and at that time and place will be publicly opened and read aloud for the following contract:

For the construction of Approach and Exit Lanes at the North Midway and the South Midway Service Stations on the Pennsylvania Turnpike. This work is situated as follows:

North Midway and South Midway Service Stations are located in Bedford Township, Bedford County, and adjacent to the Pennsylvania Turnpike.

The approximate quantities of the principal items are as follows:

Class 1 Excavation	9,250 cu. yds.
Subgrade	9,225 sq. yds.
6" Special Subgrade	9,225 sq. yds.
Reinforced Concrete Pavement	5,700 sq. yds.
Bituminous Surface Course, ID-2	3 tons
Stabilized Shoulders	1,740 lin. ft.

Copies of plans, specifications and other contract documents are on file and open to public inspection at the offices of the Pennsylvania Turnpike Commission located at Harrisburg, Pennsylvania on May 26, 1952. Copies of specifications for grading, drainage, paving and structures may be purchased from the Pennsylvania Turnpike Commission for the sum of five (5) dollars per copy.

Plans and contract documents, exclusive of specifications, may be obtained from the Commission upon deposit of ten (10) dollars for each set, such deposits to be refunded in full to any actual bidder upon return of such documents in good condition within five (5) days after the date of the opening of the bids. Refund will be made for all plans and contract documents returned, if the project is withdrawn from letting by the Pennsylvania Turnpike Commission. Remittances are payable to the Pennylvania Turnpike Commission and must accompany requests for drawings, specifications and contract documents.

The character and amount of bid security to be furnished by bidder is stated in the Instructions to Bidders.

The Commission reserves the right to waive any informalities in and to reject any or all bids.

No bids may be withdrawn for thirty (30) days after the scheduled closing time for receipt of bids.

PENNSYLVANIA TURNPIKE
COMMISSION
James F. Torrance
Secretary and Treasurer
Harrisburg, Pennsylvania
May 20, 1952

Bids: June 17, 1952

Bronze Needle Valves

CONTRACT 411

SEALED BIDS will be received by the Board of Water Supply, at its offices, thirteenth floor, 120 Wall Street, New York City, until 10:00 A.M., Eastern Standard Time, on Tuesday, June 17, 1952, for Contract 411, for furnishing, testing and delivering 36-inch and 24-inch bronze motor-operated needle valves and 12-inch bronze motor-operated needle valves with bronze air boxes, complete in every respect, for installation in the Neversink intake chamber of the Delaware aqueduct and in the release water chamber of the Downsville dam, all as set forth in the specifications.

No bid will be received and deposited unless accompanied by a certified check upon a National or State bank, drawn and made payable to the order of the Comptroller of the City of New York, in the amount of eighteen thousand dollars ($18,000.00), for the proper execution of the contract.

At the above place and time the bids will be publicly opened and read. Pamphlets containing information for bidders, forms of bid and contract, specifications, contract drawings, requirements as to surety, etc., can be obtained at the office of the Chief Engineer, Room 1311, at the above address, upon application in person or by mail, by depositing the sum of five dollars ($5.00) in cash or its equivalent for each pamphlet. Within 30 days following the award of contract or rejection of bids, the full amount of such deposit will be refunded for each pamphlet submitted as a bid and a refund of four dollars ($4.00) will be made for each other pamphlet returned in acceptable condition. For further particulars, apply at the office of the Chief Engineer at the above address.

IRVING V. A. HUIE, President, RUFUS E. McGAHEN, EDWARD C. MAGUIRE, Commissioners, Board of Water Supply.
RICHARD H. BURKE, Secretary

U. S. Government

Office of the District Engineer, Corps of Engineers, U. S. Army, 1217 U. S. Post Office and Custom House, St. Paul 1, Minnesota—Sealed bids, in duplicate, for furnishing all labor and materials and performing all work required for Pine Knoll and Tow Head Rapids Diversion Channels, Mississippi River, near Aitkin, Minnesota, will be received in this office until 2:00 P.M., C.S.T., June 12, 1952, and then publicly opened. Further information upon application.

DEPARTMENT OF THE INTERIOR, Bureau of Reclamation. Sealed bids (Specifications No. DC-3724) will be received at Goleta, California, until June 24, 1952, for furnishing labor and materials for constructing Lauro Control House, Station 641+00, South Coast Conduit, Cachuma Project, California. Location: Near Santa Barbara, California. Principal items are: Furnish and laying 11,000 lbs. cast iron pipe; installing piping fittings and valves 610,000 lbs.; constructing chlorination house; and other work. Completion time 200 days. For particulars, address Bureau of Reclamation, Goleta, California; or Building 53, Denver Federal Center, Denver, Colorado.

OFFICIAL PROPOSALS

Bids: June 12, 1952

New York State Highway Work

NOTICE TO CONTRACTORS: STATE DEPARTMENT OF PUBLIC WORKS, Albany, N. Y.,—Pursuant to the provisions of the Highway Law, and Article 2, Title 9 of the Public Authorities Law, and special provisions for projects financed with federal aid funds, sealed proposals will be received until ten-thirty o'clock A.M., advanced time, which is nine-thirty o'clock A.M., eastern standard time on Thursday, June 12, 1952 by Henry A Cohen, Director, Bureau of Contracts & Accounts, 14th Floor, The Governor Alfred E. Smith State **Office Building, Albany, N. Y., for the following projects: Maps, plans, specifications and proposal forms may be seen and obtained at the office of the State Department of Public Works, Bureau of Contracts & Accounts, Albany, N. Y., and at the office of the District Engineers noted below, and may also be seen at the office of the State Department of Public Works, 270 Broadway, New York City.**

The deposit for plans and proposal forms for each contract is indicated below. A refund will be made in full to bidders for the return of one set in good condition within 30 days of award or rejection of bids; refund for all other sets in good condition, similar period, will be 50% of deposit.

County	Contract No.	Name	Miles	Type	Deposit	Estimated Cost of Work
		DISTRICT No. 1 G. L. Nickerson, Dist. Engr., 353 Broadway, Albany, N. Y.				
Essex	FASS50-1(Comp)	Completion of Tahawus-Schroon Riv., Pt. 1 (Co. Rd.) Proj. S-1047(2)	4.44	D. S. T. Graded Gravel	$12,000 Plans $15	$220,000
		DISTRICT No. 2 Lacy Ketchum, Dist. Engr., 109 North Genesee St., Utica 1, N. Y.				
Fulton	FARC52-26	Mayfield Vill. S. H. 5194 Mayfield-Northville, Pts. 1 & 2 S. H. 368-541 Northville-Chapmans Cors. S. H. 362 Northville Village, North, S. H. 5065 Proj. F-216(2); F-604(3); F-419(4)	4.96	9″ Cem. Conc. Pavt.—24′ Wide = 4.89 Mi. Asp. Conc. Ty. 1A, Opt. = 0.07 Mi.	$36,000 Plans $15	$718,000
		DISTRICT No. 3 William Robinson, Dist. Engr., Weigh Lock Building, Syracuse, N. Y.				
Seneca	OT52-9 ST52-13	N. Y. State Thwy.—The Ontario Sect.—Subdivisions 1 & 2 (Ontario Co. Line to Tyre) & Eight Intersecting Roads	2.46	9″ Cem. Conc. Pavt.—2 @ 25′ wide = 0.12 Mi. (Thwy.) Asp. Conc. Ty. 1A, Opt. = 2.34 Mi (Int. Rds.) Hy.Sep. 4 Sp. Alpha I-Beam—222.5′ Hy. Sep. 4 Sp. Alpha I-Beam—222.5′ Hy. Sep. 4 Sp. Alpha I-Beam—229′ Hy. Sep. 4 Sp. Alpha I-Beam—224′ Hy. Sep. 4 Sp. Alpha I-Beam—222.5′ Hy. Sep. 4 Sp. Alpha I-Beam—222.5′ Hy. Sep. 4 Sp. Alpha I-Beam—228′ Hy. Sep. 4 Sp. Alpha I-Beam—227′	$72,000 Plans $50	$1,300,000
		DISTRICT No. 6 H. F. Brumm, Dist. Engr., State Office Building, Hornell, N. Y.				
Steuben	PSC9418	Elim. of Gr. Crossing of the Erie R.R., D.L.&W. R.R. & N.Y. R.R. with various streets in the City of Corning and the Villages of So. Corning, Riverside and Painted Post	....	Bldgs. & Facilities at the Engine Terminal	$13,000 Plans $50	$246,000
		DISTRICT No. 7 R. F. Hall, Dist. Engr., 444 Van Duzee St., Watertown, N. Y.				
Jefferson	FAC52-4 FAGC52-5	City of Watertown: Arsenal Street Proj. U & UG-577(4)	1.55	Asp. Conc. Ty. 2A R.R. Sep. 4 Sp. Alpha I-Beam 276′	$62,000 Plans $50	$1,127,000
		DISTRICT No. 8 J. S. Bixby, Dist. Engr., Pleasant Valley Road, Poughkeepsie, N. Y.				
Orange	FASS52-9	Pine Island-New Jersey Line, Co. Rd. 26 Proj. S-307(1)	0.26	Asp. Conc. Ty. 1A, Opt. Alpha Deck Plate Girder 110′ Sp.	$11,000 Plans $10	$200,000
Westchester	N.E.T.C.52-1	N. Y. State Thruway—New England Sect.—Subs. 2 & 2A (Boston Post Road Detour)	0.24	Asp. Conc. Ty. 1A, Opt. = 0.15 Mi. Misc. Work = 0.09 Mi.	$10,000 Plans $10	$180,000
		DISTRICT No. 9 F. W. Donovan, Dist. Engr., 71 Frederick St., Binghamton, N. Y.				
Broome	FASH52-9	Johnson City-Rte. 17 Conn. FASH50-13 (Johnson City Br. Proj. Cont. No. 3) Proj. U-1092(2)	0.37	Superstructure for 8 Sp. Alpha Plate Gird. 1400′—Alph. I-Beam 43.84 Sp. 2 Sp. Alpha I-Beam 100′	$70,000 Plans $15	$1,330,000
		DISTRICT No. 10 J. J. Darcy, Dist. Engr., Montauk Highway at Little East Neck Rd., Babylon, N. Y.				
Nassau	FARC52-36 FASH52-7	Greenvale-Glen Cove Massapequa-Glen Cove S. H. 9017 Proj. U-1102(1)	2.78	9″ Cem. Conc. Pavt. 2 @ 25′ wide = 2.77 Mi. Misc. Work = 0.01 Mi.	$85,000 Plans $25	$1,545,000
Nassau	FARC52-23	Conduit Blvd. Pts. 3, 3A, S. H. 1699A-1699C-1953 Proj. U-947(9)	3.51	9″ Cem. Conc. Pavt., 36′ wide Asp. Conc. Ty. 1A, Opt. 36′ wide } = 1.23 Mi. Asp. Conc. Ty. 1A Opt. = 1.98 Mi. Misc Work = 0.30 Mi.	$90,000 Plans $15	$1,660,000
Suffolk	N.Sag.SP52-1	Northern Sagtikos State Parkway	1.68	8″ Cem. Conc. Pavt. = 2 @ 25′ W. = 0.75 Mi. (Pkwy.) 8″ Cem. Conc. Pavt. Var. Wide = 0.82 Mi. (Acc.) Misc. Work = 0.11 Mi. Hy. Sep. 2 Sp. Rigid Frame 95′-11¼″	$50,000 Plans $25	$848,000

Special attention of bidders is called to "General Information for Bidders" in the proposal, specification, and contract agreement, and to the special provisions applying to projects financed with federal funds. Award of a contract is subject to the "Controlled Materials Plan" of the National Production Authority as well as to regulations issued thereunder.

Proposal for each contract must be submitted in a separate sealed envelope with the name and number of the contract plainly endorsed on the outside of the envelope. Each proposal must be accompanied by draft or certified check payable to the order of the "State of New York, Commissioner of Taxation and Finance" for the sum as specified in the advertisement and the proposal. The retention and disposal of the bidding check, the execution of the contract and bonds shall conform to the provisions of the Highway Law, as set forth in "Instructions to Bidders".

When optional types are permitted on contracts with federal funds, bidders must state in the space provided in the proposal the exact designation of the optional type upon which the proposal is predicated.

The right is reserved to reject any or all bids.

B. D. TALLAMY
Supt. of Public Works

OFFICIAL PROPOSALS

Bids: June 18, 1952

Ivy Mill Bridge

CITY OF BALTIMORE
DEPARTMENT OF PUBLIC WORKS
BUREAU OF WATER SUPPLY

Sealed bids, or proposals, in duplicate, addressed to the Board of Estimates of the Mayor and City Council of Baltimore, and marked "Sealed Bid or Proposal for Furnishing and Constructing a Bridge in the Patapsco Development (Ivy Mill Bridge over North Branch of Patapsco River)" will be received at the office of the Comptroller, Room 204, City Hall, Baltimore 2, Maryland, until but not after June 18, 1952 at eleven (11:00) o'clock A.M. (positively no bids will be received after 11:00 o'clock A.M.) Eastern Daylight Time, and at 12:00 o'clock noon on said date they will be publicly opened and read by the Board of Estimates in Room 231 in said City Hall.

The work to be done under this contract consists, in general, of furnishing all labor and material for and constructing complete a bridge consisting of composite wide flange beam spans and concrete piers and abutments, to be known as the Ivy Mill Bridge over North Branch of Patapsco River.

The site of the work is located approximately one-half mile north-east of the intersection of Deer Park Road and Nicodemus Road in Baltimore and Carroll Counties.

The construction includes, but is not limited to, the following items:

Section A—Substructure
- Excavation, approx., 1,060 cubic yards.
- Concrete, approx., 1,500 cubic yards.
- Portland Cement, approx., 2,440 barrels.
- Reinforcing Steel, approx., 177,000 pounds.
- Low Alloy Steel, approx., 54,500 pounds.
- Steel Piles, approx., 475 linear feet.

Section B—Superstructure
- Concrete, approx., 550 cubic yards.
- Portland Cement, approx., 900 barrels.
- Reinforcing Steel, approx., 111,000 pounds.
- Fabricated Structural Steel, approx., 858,000 pounds.
- Metal Railing, approx., 1,132 linear feet.

Bids are asked for on the Substructure (Section A) and on the Superstructure (Section B) separately and combined.

Any bidder may bid on Section A or Section B or on both sections without bidding on the combined bid, but any bidder who bids on the combined bid shall also submit individual bids on Section A and Section B.

The "Bid Total" of the combined bid need not equal the sum of the "Bid Totals" of Sections A and B.

Bids when filed shall be irrevocable.

Specifications, proposal forms, drawings, and other contract documents may be obtained at the office of the Water Engineer, Room 503 Municipal Office Building, Baltimore 2, Maryland, on and after May 30, 1952. A charge of Ten Dollars ($10.00) will be made for each set of specifications, etc., and this amount will not be refunded.

Each bid or proposal must be accompanied by a certified check of the bidder drawn upon a solvent clearing-house bank, payable to the order of the Mayor and City Council of Baltimore. The amounts of the certified checks shall be as follows:

For a bid on Section A only	$2,500.00
For a bid on Section B only	$4,000.00
For bids on both sections only or For a combined bid	$6,500.00

The Board of Estimates reserves the right to reject any and all bids, and/or to waive technical defects if, in its judgment, the interests of the Mayor and City Council of Baltimore may so require.

Bond in the amount of the contract price will be required of the successful bidder.

Attention of the bidders is called to the minimum wage rates to be paid on this project.

Approved J. S. STROHMEYER
Water Engineer

U. S. Government

Office of the District Engineer, Corps of Engineers, U. S. Army, 1217 U. S. Post Office and Custom House, St. Paul 1, Minnesota—Sealed bids, in duplicate, for furnishing all labor and materials and performing all work required for Aitkin Flood Diversion Channel, Mississippi River, near Aitkin, Minnesota, will be received in this office until 2:00 P.M., C.S.T., June 18, 1952, and then publicly opened. Further information upon application.

(Continued on the following page)

OFFICIAL PROPOSALS

Bids: June 9, 1952

Steel Bearing Piles

Sealed bids will be received by the Division of Purchases at the Office of The State Purchasing Agent, room 123, State House, Providence, Rhode Island until 10:00 A.M., on the ninth day of June, 1952 for the following:

Furnish and deliver (freight allowed) 1428 tons 14"-73# steel bearing piles, per the following schedule of lengths and quantities:
Item 1—176 piles 14-BP-73 @ 85' (546 ton)
Item 2—176 piles 14-BP-73 @ 75' (482 ton)
Item 3—176 piles 14-PB-73 @ 60'-65' random (400 ton)
Materials to conform to A.S.T.M., designation A-7
Suppliers must furnish certified mill reports—chemical & physical properties—4 copies
Shipments—preferably not more than 3
Allotment No. J-3-3Q52

Bid blanks and envelopes properly marked in which bids are to be enclosed may be obtained at the Office of the State Purchasing Agent, Room 123, State House, Providence, Rhode Island on and after Monday, May 26, 1952 every weekday except Saturdays between the hours of 8:30 A.M. and 4:30 P.M.

Each bidder must furnish a bid bond or certified check in an amount not less than three percentum (3%) of the bid and the successful bidder must furnish a performance bond equal to 100% of contract.

DEPARTMENT OF ADMINISTRATION
Division of Purchases
By: Franklyn A. Adams
State Purchasing Agent

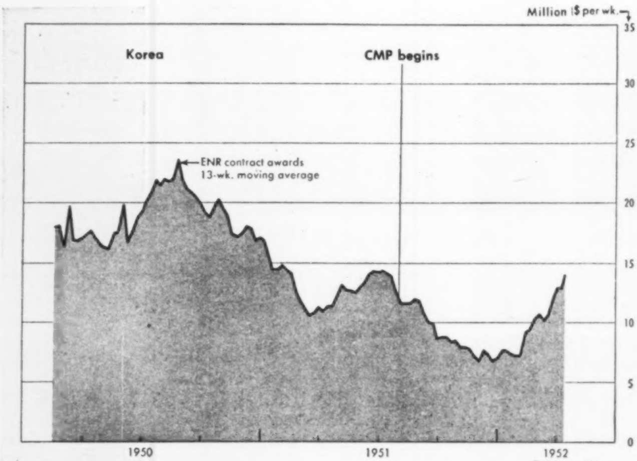
U. S. Government

GOVERNMENT OF THE DISTRICT OF COLUMBIA, DIRECTOR OF HIGHWAYS, D. C., May 23, 1952. SEALED PROPOSALS will be received in Room 429, District Building, 14th and E Streets, N.W., Washington 4, D. C., until 2:00 P.M., June 18, 1952, EASTERN DAYLIGHT TIME, and then publicly opened and read for certain grading and drainage for the Extension of East Capitol Street Bridge from 19th Street to Kingman Lake. Federal Aid Project #FS-42(3). Quantities of the main items involved are: Removal and disposal of 562,000 cu. yds. of unsuitable material by dredging; and 960,000 cu. yds. of borrow and fill material. Prospective bidders are advised that water borne equipment will be limited to size by existing clearances horizontal and vertical by certain downstream bridges. Proposal forms, drawings and specifications may be obtained in the Office of Chief Clerk, Engineer Department, Room 427, District Building, upon the deposit of a Certified Check made payable to the Collector of Taxes, D. C., in the amount of TEN DOLLARS ($10.00) for each set. (Telephone National 6000, Ext. 2378)

DEPARTMENT OF THE INTERIOR. Bureau of Reclamation. Sealed bids (Specifications No. DC-3721) will be received at Friant, California, until June 17, 1952, for furnishing labor and materials for earthwork and structures, lateral No. 6.2, station 0+73.50 to station 759+65, and sublaterals, east section, unit No. 1, Madera Distribution System, Central Valley Project, California. Location: Approximately 9 to 14 miles northwest of Fresno, California. Principal items are approximately: 1,660,000 cu.yds. excavation; 1,680 cu.yds. concrete; 30,000 lin.ft. 12-inch to 78-inch concrete pipe; 45,000 lbs. metalwork; and other work. Completion time 360 days. For particulars, address Bureau of Reclamation, Friant, California; or Building 53, Denver Federal Center, Denver, Colorado.

DEPARTMENT OF THE INTERIOR. Bureau of Reclamation. Sealed bids (Specifications No. DC-3723) will be received at Davis Dam, Arizona, until June 26, 1952, for furnishing labor and materials for completion of architectural finish and miscellaneous metalwork installations for Davis Dam and Power Plant, Davis Dam Project. Location: Davis Dam and Power Plant on Colorado River approximately 30 miles west of Kingman, Arizona. The work consists of installation of floor finishes, wall finishes, metal partitions and ceilings, acoustical unit ceilings, and miscellaneous metalwork, which metalwork will include trolley beams, ladders, handrailings, stairways, platforms, and other items. Completion time 300 days. For particulars, address Bureau of Reclamation, Davis Dam, Arizona; or Building 53, Denver Federal Center, Denver, Colorado.

BUSINESS AND FINANCE



ENR Business News

Commercial building comes back to life

- May highest month since November, 1950
- Easing of controls will boost volume
- 1952 may be second biggest post-war year

Commercial building came back to life with a bang this month. When the final contract awards are added up, the volume for May will make it the biggest month since November, 1950, the post-war boom year for this type of construction.

As a result of the recent upswing, 1952 commercial building contracts, as reported by ENGINEERING NEWS-RECORD, have pulled up to within 7% of 1951.

During the first 21 weeks of this year, commercial building stacked up $247 million in new contracts, somewhat less than the $267 million in 1951.

Two factors will soon push the commercial construction total past 1951's figures. One is the easing of controls, which will show up in the form of CMP allocations for commercial projects in the third and fourth quarters. The second is the spurt in private housing which brings with it a demand for new commercial developments.

• Out of the doldrums–Commercial building, perhaps more than any other type of construction, has felt the impact of government controls because of the defense effort.

Controls first hit commercial construction in January, 1951. As a consequence, contracts fell off sharply in the spring of the year. In June, they leveled off. But in July, the Controlled Materials Plan arrived on the scene and the noose was tightened for commercial building.

Volume tumbled month-by-month. In December, contracts for commercial building reached the lowest point since March, 1948.

Although commercial construction began to pick up after the start of this year, there were no strong indications that the volume would come anywhere near the high level reached last year.

However, the sharp upturn in recent weeks brightens the outlook for commercial building for the balance of the year.

Controls are on the way out. Because of that, the volume of commercial building can be expected to accelerate in the third quarter.

Don't expect 1952 to match the near $1 billion racked up in 1950. But this year will pull well ahead of 1951, which, with $600 million in contract awards, was the second highest post-war year for commercial construction.

USING MODELS of Caterpillar earth-moving equipment to illustrate their points, William L. Naumann, general factory manager, and Otto Wiesemann, production manager, explain details of the company's current expansion program.

Caterpillar answers market call

Scrapers, wagons and other earthmoving equipment are rolling off assembly lines at a 16-acre plant in Joliet, Ill.—newest facility to be placed under full production in the Caterpillar Tractor Company's multi-million-dollar plant-expansion program.

It was born of necessity to help satisfy the increasing demands of a hungry market for heavy earthmoving equipment.

At the same time, a growing cost-consciousness on the part of the construction industry; together with the possibility of even higher wages, called for a highly efficient factory to meet the challenge of toughening sales competition.

Caterpillar thinks its new Joliet plant with the latest in labor-saving machinery, innovations in handling material, and assembly line production of heavy earthmoving equipment will enable it to hold its own in any competitive market.

• **Efficiency plus economy**—Wide column spacings provide nine bays, 80 ft. wide by 920 long for the production and assembly lines; high-intensity fluorescent lighting (32 ft-c) plus a high-capacity ventilation system for the control of "welding haze" from 500 welding machines, make for ideal working conditions; and, as factory manager Hugh Boggs described it, "We've installed so much labor-saving equipment that we've taken most of the work out of working."

Located on a 305-acre site readily accessible to water, truck and rail transportation, as well as a tight but adequate labor market, the plant represents a new approach to the production of heavy earthmoving equipment. Manufacturing activities are concentrated on the production of scrapers, wagons, bulldozers, rippers, cable controls and hydraulic control units.

Biggest item made is the 35,000-lb No. 90 scraper, which carries a price tag of $18,500, FOB Joliet. It has a truck capacity of 21.2 cu yd but on customers' orders, is sideboarded to hold a heaped load of 31 cu yd without difficulty.

Component parts of scraper bowls and bulldozers are formed in powerful hydraulic presses and fabricated on special adjustable welding fixtures that permit down-hand welding. Scrapers, earth-carrying wagons and rippers are assembled on production lines that move along on rail-mounted dollies which support them at accessible heights.

Initial production began in February of last year—less than a year after starting construction of the plant. Full production was obtained by February 1 of this year.

• **Use local labor**—General manager W. L. Naumann is justly proud of his operating personnel, built up and trained for full production in less than a year. Starting with 104 supervisors and 173 skilled workers transferred from the Peoria plant, he has built his total personnel up to 3,668; and expects it to reach 4,000 by the end of this year.

Plans for additional facilities at Joliet were disclosed by Naumann.

They include a 228,600-sq ft addition next year to the present 662,400-sq ft manufacturing building.

Another project scheduled to be completed next year, is a 283,000-sq ft building to be used by the company for the manufacture of repair and replacement parts.

"Due to the urgency of Caterpillar's expanding parts business," said Naumann, "we have leased 500,000-sq ft of manufacturing space in Rockdale, Ill. Dealers west of the Mississippi will be serviced from this plant, starting June 1."

• **More sales; less profit**—Commenting briefly on his company's financial status, Naumann reported that 1951 sales totaled $393.8 million—a 17% increase over 1950.

But this last year's profit of $15.7 million was 46% lower than the record high of $29.2 million in 1950. First-quarter sales this year, totaling $130.3 million, are the highest on record for any quarter in the company's history.

JOLIET PLANT; FACTS AND FIGURES

Plant facilities:	
Manufacturing building	662,400 sq ft
Offices	40,100 sq ft
Cafeteria and locker rooms	24,000 sq ft
Total (present plant)	726,500 sq ft
1953 additions:	
Parts processing plant	283,000 sq ft
Manufacturing extension	228,600 sq ft
Total area	1,238,100 sq ft

Foundations: On solid rock.

Floor: Wood block on concrete slab.

Framing: Steel beams and columns.

Walls: Sandwich-type metal siding with fiber-glass insulation.

Roof: Insulated metal deck.

Water supply: Two 600 gpm deep-well pumps.

Steam (heating and processing): Two 80,000 lb per hr boilers.

Electric power: 132,000-v, stepped down to 4,000-v, 440-v, and 110-v. (Consumption: 2,100,000 kwh per month).

Natural gas supply; plus 70-days' emergency supply of propane gas.

Compressed air: Two 3,186 cfm compressors.

Architects: Giffels & Vallet, Inc., Detroit.

General contractor: Gust K. Newberg Construction Co., Chicago.

Naumann attributed the high sales volume during the past 15 months to: (1) higher sales prices; (2) increased shipments of replacement parts and engines, particularly some new models having substantially higher horsepower ratings; and (3) the successful introduction in mid-1951 of a line of off-highway, heavy-duty, rubber-tired tractors.

The sharp reduction in profit last year—despite increased sales—was due principally to a combination of abnormally high costs of steel; higher income taxes; and a strike at the company's Peoria plant.

Naumann defended his company's decision to use conversion and foreign steel during this period.

"Failure to do so," Naumann said, "would have reduced operations substantially; thousands of employees would have been laid off; a general disruption of the organization would have occurred; and there would have been a substantially lower profit."

• **Strong market ahead**—A look-behind-the-scenes at Caterpillar's sales philosophy was presented by Henry H. Howard, director of sales.

"Sales of heavy earthmoving machinery," he said, "continue strong in the world market despite a gradual shifting from a long delivery situation to a shorter one. At the same time, the market demand for the type of machinery we are now manufacturing in the Joliet plant has become so strong that the only answer was the construction of a planned factory capable of producing these units at the most economical cost and with the maximum efficiency."

Howard declined to make a dollars-and-cents prediction on future selling prices of Caterpillar products, but asserted they would depend in great measure on any changes which might be made in the future prices of mill steel.

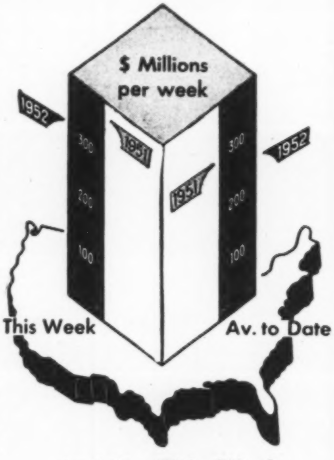
• **See ¾-billion market**—Howard's outlook on the future of the earthmoving industry, however, is optimistic. Concerning this question the sales director declared:

"Now that the Joliet plant is in full production, and other plant expansions and improvements of Caterpillar plants are nearing completion, we have taken a long look at the prospect of future sales. While our 1951 sales totaled $394 million, we are now confident that we can foresee three-quarters of a billion dollars as our annual sales potential."

Briefs . . .

• **Housing starts up**—The Bureau of Labor Statistics reported that estimated housing starts for April totaled 108,000—up 10.2% over March. The April figure included 9,500 public housing units. The March total of 98,000 starts included 12,000 public housing units.

• **Cost index rises**—The Associated General Contractors Construction Cost Index for April stands at 379 (1913 equals 100). This is an increase of one point over March and three points over April, 1951.



Activity This Week

As reported to ENR
(in million of dollars)

Contracts by type of work

	This Week	—Cumulative 22 wks.— 1952	1951	% chge
Waterworks.	$1.9	$100.5	$95.8	+5
Sewerage ...	9.3	98.4	139.3	−29
Bridges	8.3	153.0	122.9	+24
Highways ..	61.2	594.0	439.2	+35
Earthwork, waterways .	4.1	239.9	246.8	−3
Buildings:				
Public	56.4	732.9	965.5	−24
Housg., pub.	20.2	416.1	232.1	+79
Housg., priv.	60.1	1,250.4	914.3	+37
Commercial	13.4	260.4	284.0	−8
Industrial . .	55.5	1,256.2	2,128.4	−41
Unclassified.	17.4	540.3	687.5	−21
Total	**$307.8**	**$5,642.1**	**$6,255.8**	**−10**

NOTE: Minimum size projects included are: Waterworks and waterway projects, $34,000; other public works, $60,000; industrial buildings, $82,000; other buildings, $300,000.

ENR indexes

		Base Year = 100 1913	1926	1949
Constr. cost .	**May'52**	**557.11**	**267.80**	**116.79**
	Apr.'52	554.12	266.36	116.16
Bldg. cost . .	**May'52**	**410.36**	**221.83**	**116.65**
	Apr.'52	407.94	220.52	115.96
Volume ...	**Apr.'52**	**568**	**231**	**164**

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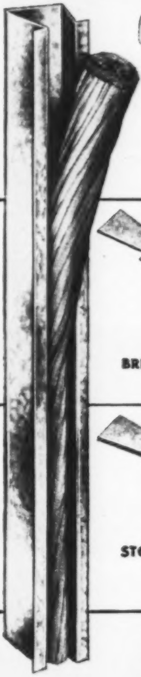
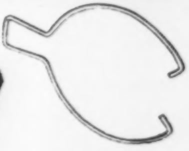
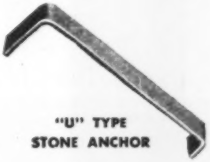
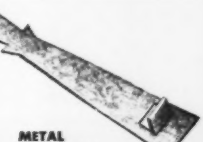




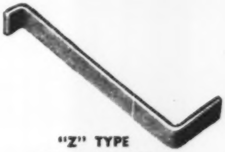
WIRE BRICK ANCHOR



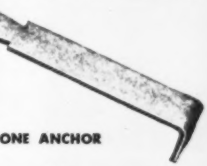
"U" TYPE STONE ANCHOR



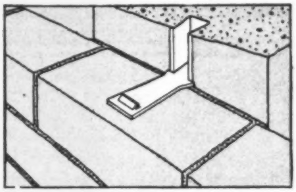
METAL BRICK ANCHOR



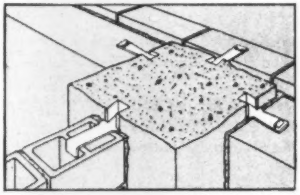
"Z" TYPE STONE ANCHOR



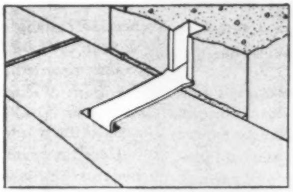
STONE ANCHOR



Anchoring Brick to Concrete



Anchoring to column with brick facing and tile partition, showing versatility of Dovetail Anchor Slot and Anchors.



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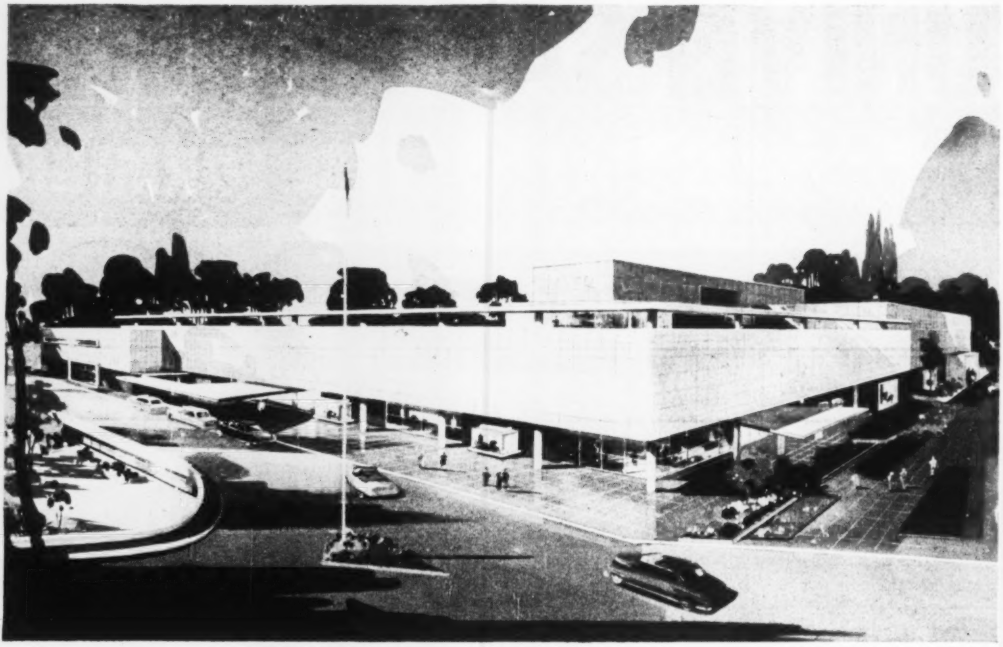

DESIGNER: WILLIAM T. SNAITH OF RAYMOND LOEWY ASSOCIATES
ARCHITECTS: PEREIRA & LUCKMAN AND CHARLES O. MATCHAM
GENERAL CONTRACTOR: THE WILLIAM SIMPSON CONSTRUCTION COMPANY

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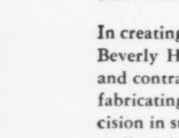

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UNIT PRICES

Folsom power plant, Calif.

The $5.8 million Folsom powerplant is an underground reinforced concrete structure topped by a structural steel craneway frame for a 275-ton bridge crane. It will house 3 generators which will be driven by three 74,000-hp hydraulic turbines.

A Central Valley project, under construction by the Bureau of Reclamation, the powerplant is at Folsom Dam on the American River in California. The dam, (Unit prices ENR 9-27-51, p. 115) is being built and will be maintained by the Corps of Engineers. The power and water distribution is under the Bureau. Unit prices for the diversion tunnel, a $643 thousand contract, were reported 10-11-51, p. 102.

Included in the materials that the Government will furnish are steel tubing and tube and pipe fittings, rubber water stops and joint strips, draft-tube pier noses and bulkhead gates and rubber sealing strips, penstocks, crane hoist and lifting frame, drainage and unwatering sump pumps, the three generators and the three turbines.

Minimum wage rates begin at $1.70 for laborers; 2.39 for carpenters; $2.75 for electricians; $2.70 for structural iron workers; and $2.75 for plumbers.

Bidders include:

1C	Guy F. Atkinson Co., San Francisco, Calif	$5,772,960
2	Merritt-Chapman & Scot, New York, N. Y.	5,966,524
5	Stolte Inc. and Morrison-Knudsen Co. Inc. (Joint Venture), Oakland, Calif	7,053,063

Bids: 4-2-52 Items	Unit	Quantity	Unit Prices 1 C	2
Unwatering	ls	1	$235,000	$138,000
Exc, all cls, pp*	cy	83,650	$4.40	$5.80
Drilling line holes	lf	95,500	0.60	2.00
Exc, all cls, switchyd	cy	37,200	0.50	1.75
Exc, tailrace chanl, pp access rd & park area,				
common	cy	261,000	0.85	0.80
rock	cy	240,000	2.95	3.60
all cls, misc struct	cy	3,000	5.00	9.00
all cls, penstock tun	cy	12,650	42.00	40.00
Backfill	cy	1,700	1.10	1.50
Compacting bkfill	cy	1,000	4.00	3.00
Dry-rock paving	sy	9,200	3.00	9.00
Gravel surf	cy	440	4.40	6.00
Grt tub & ftngs for fill voids by grtng method penstock tunnels	lb	10,300	0.50	1.00
Conc or clay sewer pipe, 4"				
const drains uncmt jt	lf	600	1.60	0.60
6" const. drn. uncmt. jt	lf	500	1.70	0.75
4"—cmt jt	lf	30	3.00	2.00
6"—cmt jt	lf	40	3.00	2.00
Corr met pipe, 12"	lf	230	3.90	4.00
15"	lf	35	4.00	5.00
18"	lf	400	4.50	6.00
24"	lf	600	5.50	8.00
Gravel bedding	cy	125	5.00	10.00
Drill holes anchor bars & grnd rods & grt anchor bars & grnd rods in plc	lf	9,500	1.65	3.00
Beam-type guardrail metal				
posts	lf	220	4.00	4.00
wood posts	lf	600	4.00	4.00
Cement	bbl	50,000	3.75	4.00
Reinf bars ½" & smaller	lb	80,000	0.14	0.15
⅝" to ⅞"	lb	630,000	0.125	0.13
1" & larger	lb	4,400,000	0.11	0.11
Conc bkfill pp struct	cy	4,200	20.00	5.00
Conc, 1st stg, pp substructure	cy	8,500	38.00	40.00
intermediate struc	cy	7,800	48.00	50.00
superstructure	cy	6,250	65.00	60.00
Conc, 2nd stg, pp struc	cy	5,000	28.00	30.00
3rd stg, pp struct	cy	400	75.00	70.00
Conc, blockouts	cy	35	200.00	100.00
duct bank	cy	55	85.00	60.00
control-cable tunnel	cy	475	65.00	80.00
penstock tunnels	cy	5,600	48.00	32.00
pen tunl portals	cy	75	70.00	100.00
tailrace train walls & access rd retain wall	cy	1,160	35.00	40.00
access rd sidewalk, parapet & catch basins	cy	150	70.00	100.00
gravity train wall	cy	1,250	34.00	30.00
septic tank & retain wall & switchyard	cy	100	100.00	100.00
Constr control jts	lf	200	2.20	2.00
Corkbd jt filler, 1"	sf	7,700	0.65	0.60
Bituminous jt filler, ½"	sf	2,000	0.50	0.40
Rubber water stops	lf	7,500	2.20	0.30
Rubber jt strips met strap	lf	70	3.50	3.00
without met strap	lf	140	2.50	2.00
Const asph seals	lf	450	9.00	5.00
Finish recess light unit	ea	20	15.00	5.00
light panel bds, misc power bds or control cab	ea	5	30.00	10.00
Bit-saturat felt roof	sf	850	0.60	0.60
Membrane waterproofing	sf	12,500	0.40	0.50
Stl fram pp superstruct & crane runway	lb	935,000	0.22	0.20
Struct stl hatch covers	lb	233,000	0.25	0.25
Mineral-wool ins-hatch cov	sf	270	1.25	0.60
Corkbd ins-hatch covers	sf	5,720	0.65	0.60
Metal-clad fire doors	sf	100	10.00	8.00
Anchor bolts	lb	9,500	0.45	0.50
Draft-tube pier noses	lb	40,000	0.05	0.10
Embedded metal frames	lb	7,000	0.60	0.70
Track rails on conc	lb	13,500	0.25	0.25
Misc metalwork	lb	31,800	0.60	0.70
Penstocks	ls	1	$250,000	$213,000
Draft-tube bulkhd gates	lb	114,300	$0.07	$0.10
Crane & hoist	lb	500,000	0.065	0.05
Seats & guides for draft-tube bulkhd gates	lb	54,000	0.14	0.15
Oil storage tanks	lb	37,800	0.05	0.07
Embedded pts of 3-74,000 hp hydraulic turbines	ls	1	$120,000	$50,000
Motor-driven sump pumps	lb	15,000	$0.15	$0.40
Firehose & service cab	ea	9	40.00	70.00
Metal tubing, pipe, valves ftngs 6" & larger	lb	26,500	0.40	0.50
less than 6"	lb	10,000	0.50	1.00
CI soil pipe & ftngs 6" & larger	lb	33,000	0.45	1.00
less than 6"	lb	35,000	0.50	1.50
CI b & s water pipe & ftngs 6" & larger	lb	80,000	0.45	0.25
less than 6"	lb	5,500	0.60	0.80
Metal pipes, ftngs, & valves less than 6"	lb	3,100	0.45	0.80
Draft tube unwater valves	lb	4,000	1.25	0.80
Drain tile, 4", open jts	lf	600	1.50	0.50
Grnd cables & rods, making grnd connections	lb	6,000	2.00	3.00
Power contact conduct asmb 275-t travel crane	lb	4,400	0.90	0.60
Embed elect met cond ½"	lf	500	1.25	0.40
¾"	lf	7,300	2.00	0.50
1"	lf	5,000	2.10	0.80
1½"	lf	10,300	2.25	1.30
2"	lf	1,600	2.50	1.60
2½"	lf	1,000	3.00	2.40
3"	lf	2,000	4.00	3.15
3" duct bank to dam	lf	600	4.00	2.00
Embed elect non-met cond				
3"	lf	100	2.50	2.00
3" duct bank to dam	lf	3,000	2.50	2.00
Exposed elect metal cond & flexible cond ½"	lf	600	1.25	0.50
¾"	lf	2,000	1.50	0.55
1"	lf	200	1.75	1.00
Ins elect wire, 600-V,				
#12 AWG	lf	20,000	0.18	0.14
#10 AWG	lf	20,000	0.20	0.15
#8 AWG single-conduct	lf	3,000	0.25	0.20
Recessed light panel bds	ea	5	$350	$1,390
Surf-mount panel bds	ea	3	300	1,390
Type A light fixtures	ea	20	$80.00	$22.00
type B, C and D	ea	168	40.00	30.00
type E, F, G	ea	32	45.00	85.00
type H	ea	16	60.00	225.00
type J and K	ea	28	40.00	35.00
type L	ea	4	300.00	700.00
type M	ea	29	200.00	115.00
type N	ea	6	60.00	77.00
type P	ea	9	35.00	48.00
type R	ea	9	50.00	48.00
type S, T, and U	ea	38	60.00	84.00
Light fix, 2-lamp fluor				
type AA, 96"	ea	26	145.00	285.00
type BB and CC, 48"	ea	3	150.00	160.00
type BB, 96"	ea	10	140.00	270.00
type CC, 96"	ea	7	270.00	160.00
type DD, 48"	ea	2	75.00	140.00
type DD, 96"	ea	20	110.00	340.00
Light sys wir devices	ea	200	6.00	5.90
Power receptacle outlets,				
60-ampere, 460-V	ea	10	75.00	98.00
100-ampere 480-V	ea	3	100.00	120.00
Distrib line, 12.47-K	ls	1	$20,000	$38,076

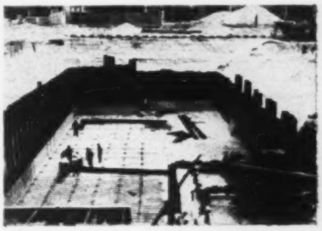
* pp designates power plant.

HOW TO HANDLE
WET JOBS

#6 of a Series

ROCKAWAY SEWAGE TREATMENT WORKS

Contractor: Merritt-Chapman & Scott
Pumping: Wellpoint Dewatering Corp.



NO BRACING—SUBGRADE
31 FT BELOW JAMAICA BAY

Location was Rockaway Peninsula, sandwiched between Jamaica Bay and the Atlantic Ocean. Ground water had to be lowered to a maximum depth of 31 ft. Wellpoint Dewatering Corp., a Griffin associate, was employed to handle the intensive pumping problem.

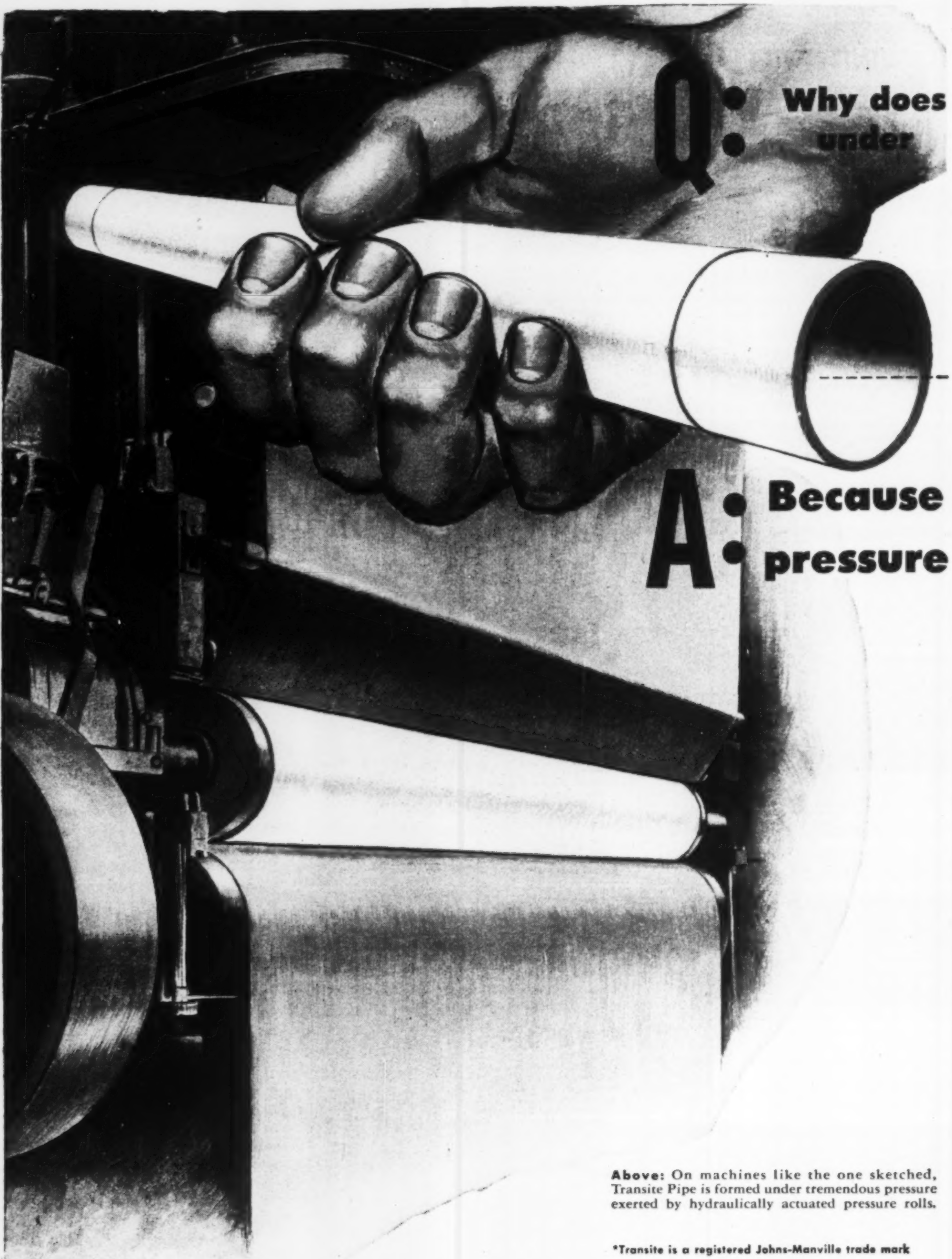
Griffin Wellpoints took the job in stride and pumped 6 million gallons per day, round-the-clock for 9 months, to drain the entire 2-block-long project. Because of limited working space, steel piling was required in the lower portion of the deep excavation. Contractor desired to eliminate cumbersome cross-bracing; Griffin engineers planned wellpoints so that hydrostatic pressure was considered zero in piling design. Steel sheet piling was cantilevered with a penetration of 15 ft below subgrade.

- Result: Absolutely no cross-bracing—unobstructed working area—job completed ahead of schedule. For "quick-dry"...specify ...Griffin.

GRIFFIN
WELLPOINT CORP.

881 East 141st Street, New York 54, N. Y.
Hammond, Ind. Houston, Tex. Jacksonville, Fla.

In Canada: Construction Equipment Co., Ltd.
Toronto Montreal Halifax


Q: Why does
under
A: Because
pressure

Above: On machines like the one sketched, Transite Pipe is formed under tremendous pressure exerted by hydraulically actuated pressure rolls.

*Transite is a registered Johns-Manville trade mark

Johns-Manville TRANSITE

TRANSITE PIPE last longer these Texas city streets?

The water system in this fast-growing Texas city is a tribute to the lasting strength and corrosion resistance that enable Transite Pipe installations to outlast other pipe under busy city streets. The first Transite mains were installed here in 1939 to replace previously used pipe which had a service life of approximately seven years. So successful was this original installation that today, virtually the entire supply and distribution system consists of Transite mains.

it's formed under tremendous for lasting strength

Yes, it's the all-important quality of *lasting strength* that enables Transite* Pressure Pipe to stand up under conditions highly adverse to ordinary pipe—as typified by the Texas city installation shown in the photograph above.

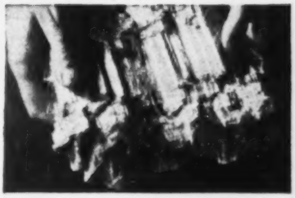
One of the reasons why Transite Pipe has this exceptional ability is the process used in its manufacture.

On specially designed pipe-forming machines, the materials that go into its making—asbestos, cement and silica . . . are consolidated under heavy pressure into a tough, dense homogeneous pipe wall structure. And reinforcing this structure . . . distributed uniformly throughout each length of pipe . . . are countless indestructible fibers of asbestos with a tensile strength comparable to that of steel. *No wonder this modern asbestos-cement pipe is strong and stays strong through the years!*

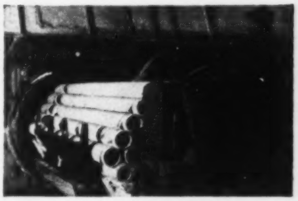
And no wonder thousands of American cities and towns have found it the answer to today's need for a pipe that assures the greatest possible return on waterline investments. For in addition to those economies resulting from lasting strength, Transite Pipe also provides other important savings. Its light weight and easy handling reduce installation costs. Its tight, flexible Simplex Couplings cut down on costly leakage losses. Its smooth interior assures a high coefficient of flow (C=140) and, because Transite cannot tuberculate, helps keep pumping costs permanently low through the years.

May we send you all the facts? Brochure TR-11A will bring them to you free. Address Johns-Manville, Box 60, New York 16, N. Y.

JOHNS-MANVILLE
JM
PRODUCTS



Tough, strong asbestos fibers reinforce Transite Pipe—contribute to its exceptional corrosion resistance and lasting strength.



The pressure steam curing process—another reason why Transite Pipe survives corrosive attack and stays strong in service.

Transite's tight, flexible Simplex Couplings help relieve the line of excessive flexural stresses and safeguard against leakage and resulting undermining effects on water mains.

asbestos-cement PRESSURE PIPE

CONSTRUCTION REPORTS

Bids Asked—Low Bidders—Contracts Awarded—First Section

Compiled by Business News Department—Engineering News-Record, 330 W. 42nd St., New York 36, N. Y.

ELSIE EAVES, Manager *J. A. MAHONEY, Reports* *M. R. ROESSLER, Statistics*

NEW ENGLAND

BIDS ASKED—BUILDINGS

Mass., Roxbury—PLANT—B.A. 6/4—Columbia Packing Co., 155 Blackstone St., Boston (selected last bidders) meat packing plant, Market area South End, $800,000. Henschein Everds & Crombie, 59 E. Van Buren St., Chicago, Ill., engrs and archts. CD 3/31.

HEAVY CONSTRUCTION

LOW BIDS AND CONTRACTS

▲ **MASSACHUSETTS**—Commonwealth of Mass., Dpt. P. Wks., 100 Nashua St., Boston,

M. A. Gammino Constr. Co., 728 Valley St., Providence, R. I. LB, **$1,045,209**, est. $1,500,000. State Hy. relocation Auto Rte. 20, Chicopee. Bids May 20. CD 5/6.

MIDDLE ATLANTIC

BIDS ASKED—HEAVY CONSTRUCTION

▲† **N. J., Fort Dix**—B.A. 6/18—Dpt. Army, 121 N. Broad St., Phila., Park water dist. sys., sanitary and storm sewers, underground steam dist. sys., aerial electrical dist. and street lighting sys. and paving, $2,800,000. Extended date. Frank Grad & Son, 11 Commerce St., Newark, archts. CD 5/15.

▲† **Pennsylvania and New Jersey**—B.A. About 7/1—U. S. Eng., 121 N. Broad St., Phila., Pa., maintenance dredging 25 ft. ship channel in Delaware River from mouth of Frankford Creek, Phila., Pa., to upper end of Newbold Island, N. J., 20.6 mi., removal 1,174,000 cu. yd. silt, Civeng 36-109-52-54. $2,200,000. Plans deposit $5. CD 6/9/44.

BIDS ASKED—BUILDINGS

▲ **N. J., Fairlawn**—SCHOOL—B.A. 6/2—Bd. Educ., High School Bldg., Bergen Ave., Junior High School adjacent to Milnes School site, $1,200,000.

▲† **D. C., Wash.**—HOSPITAL—B.A. On Or About 6/13—U. S. Eng., 1 and Douglas Sts. N.W., Zone 25, hospital ward wing and auditorium at U. S. Soldier's Home. Plans deposit $100. CD 4/11/50.

▲ **D. C., Wash.**—HOUSING—B.A. About 6/17—National Capital Housing Auth., 1728 L St. N.W., Richardson Dwellings, Project DC-1-17, incl. 190 dwelling units, 2 and 3 story buildings, grading, sewer and water lines, streets and walks. CD 5/12, under LB.

▲ **Pa., Phila.**—SCHOOLS—B.A. 6/17—Bd. Educ., 21 St. and Winter Sts., elementary school, Johnson and Crittenden Sts., $891,500; elementary school Providence Rd. and Pickering St., Roumfort and Gowen Aves., $990,000. Extended date. J. Demchick & David Supowitz, 246 S. 15 St., archts. CD 5/8.

▲ **Pa., Blooming Glen**—SCHOOL—B.A. 7/1—Sellersville-Perkasie Joint Comn. and Sellersville-Penn Ridge Consolidated School Dist., high school. $2,000,000. Micklewright & Mountford, 72 Ewing St., Trenton, N. J., archts. CD 8/29/51.

SOON LETS CONTRACT—BUILDINGS

Pa., Phila.—RESEARCH—Children's Hospital of Phila., 1740 Bainbridge St., soon lets contract research bldg. $709,500. Carroll Grisdale & Van Alen, 204 W. Rittenhouse Square, archts. Severud-Elstod-Krueger, 415 Lexington Ave., New York, N. Y., engrs. CD 5/15.

HEAVY CONSTRUCTION

LOW BIDS AND CONTRACTS

▲ **PENNSYLVANIA**—State Hy. & Bridge Auth., 506 North Office Bldg., Harrisburg,

Schaller & Hoffmeister, East Greenville, Pa., CA **$1,614,974**. construct 10,236 ft. divided road 24 ft. wide each side of divisor, rein.-con. pavement, I-deck plate girder bridge, Allentown By-Pass Sec. T. R. U. S. 22. Lehigh Co. Bids Apr. 25, awarded May 15. CD 4/29, under LB.

Square Constr. Co., 115 S. Haven St., Baltimore, Md., CA. **$875,010**. High Level cutoff intercepting sewer, 60th St., PHILA., PA. Dpt of Procurement, City Hall Annex, Phila., Pa. Samuel A. Baxter, water comr. Bids May 15. CD 4/18.

▲ **Booth & Flinn**, 1942 Forbes St., Pittsburgh, Pa. CA **$1,318,924**. Liberty Rd. Bridge over Patapsco River, north Branch Patapsco River, BALTIMORE, MD. City, Dpt. Water Supply, 503 Municipal Bldg., Baltimore, Md. CD 5/15, under LB.

BUILDINGS

LOW BIDS AND CONTRACTS

Tonidor Realty Corp., c/o Tito Di Vincenzo, archt., 254 W. 54 St., New York 19, N. Y. Owner Builds. **$800,000**. GARDEN APARTMENTS, 300 Bway., DOBBS FERRY, N. Y.

Thomas J. Hughes Constr. Co., Grand Central Terminal, New York 17, N. Y. CA **$750,000**. 3 story school, Grand Ave. and Seabury St., ELMHURST, N. Y. Church of the Ascension, 86-13 55 Ave. CD 4/14/50.

▲ **Jamaica Estates North Homes**, c/o Benjamin R. Levinson, archt., 168-25 Hillside Ave., Jamaica, N. Y. Owner Builds. **$2,000,000**. 140 HOUSES, 166 St. and 75 Ave., JAMAICA, N. Y.

▲ **Martin Fisher**, 120-44 Queens Blvd., Kew Gardens, N. Y. Owner Builds. **$2,200,000**. 13 story apartment, Kappock St. and Palisade Ave., NEW YORK, N. Y. CD 5/7.

▲ **Seaford Manor Homes**, c/o Alwin Cassens, Jr., archt., 145 S. Franklin Ave., Valley Stream, N. Y. Owner Builds. Approx. **$2,000,000**. 176 HOUSES on tract at Brooklyn Ave. and Seamans Neck Rd., SEAFORD, N. Y.

▲ **Turner Constr. Co.**, 1500 Walnut St., Phila., Pa. CA **$3,384,250**, general contract;

Chas. Simkin & Sons, Inc., 218 Paterson St., Perth Amboy, N. J. CA **$742,676**. heating, ventilating and air conditioning contracts;

Emerson Garden Electric Co., Inc., 40 W. Scott Pl., Elizabeth, N. J. CA **$792,804**. electrical work for State Mental HOSPITAL, ANCORA, N. J. State Div. Purchases and Property State House, Trenton, N. J. Grand total $4,919,730. CD 5/8, under LB.

▲ **George Mittleman & Sons**, 4844 Bingham St. Phila., Pa., Separate Contracts. **$3,300,000**. RESIDENTIAL DEVELOPMENT, Route 39, BORDENTON, N. J. Dante J. D'Anastasio, 1815 Federal St., Camden, N. J., archts.

▲† **Wigton-Abbott Corp.**, 1225 South Ave., Plainfield, N. J. CA, **$5,000,000**, Ordnance PLANT rehabilitation, BURLINGTON, N. J. Dpt. Army, 121 N. Broad St., Phila., Pa.

▲ **Fairview Ridge Estates**, c/o Rudolph L. Novak, archt., 713 Main St., Clifton, N. J. Owner Builds. **$3,000,000**. 175 HOUSES on 75 acre tract, Fairview Ave., CEDAR GROVE, N. J.

▲ **Firth & Godley Homes Co., Inc.**, 220 N. 7 St., Camden, N. J., Separate Contracts. **$1,200,000**, RESIDENTIAL DEVELOPMENT, Charles St., PALMYRA, N. J. Dante J. D'Anastasio, 1815 Federal St., Camden, N. J., archt.

Ferry Road Manor Homes, Inc., c/o Abe Topkis, 5 and Market Sts., Camden, N. J., Separate Contracts, **$900,000** RESIDENTIAL DEVELOPMENT, Franklin and Clamor Sts., TRENTON, N. J. Dante J. D'Anastasio, 1815 Federal St., Camden, N. J., archts.

George H. Evans & Co., 1914 Spring Garden St., Phila., Pa. CA. **$720,587**. general constr. 22-room elementary SCHOOL for Fairless Hills Sect. of Twp. at Hulmeville and Oxford Valley Rds., Falls Twp. FALLSINGTON, PA. Falls Twp. School Auth., Fallsington Elementary School, Fallsington, Pa. Bids Apr. 23, awarded May 20. CD 4/30, under LB.

Kober Constr. Co., 1630 W. Thompson St., Phila., Pa., CA **$850,000**. RESIDENTIAL DEVELOPMENT, Baltimore Pike and Turner Rd., MEDIA, PA. Owner, c/o general contractor. Damon & Foster, Sharon Hill, Pa., engrs.

▲ **Brotherton Constr. Co.**, 1025 S. 21 St., Harrisburg, Pa. LB **$1,426,925**. general contract Junior-Senior High SCHOOL, alterations to Elementary and Junior Senior High SCHOOLS, OXFORD, PA. Oxford Area Joint School Auth., Oxford, Pa. Bids May 13. CD 4/16.

▲† **Irwin & Leighton**, 1505 Race St., Phila., Pa., CA **$1,596,400**. General Services and Supply OFFICE, incl. buildnig, sentry house, road work, curbs, walks, NOY 70149, PHILA. PA. Dpt. Navy, P. Wks. Office, Phila. Naval Base, Phila. Pa. Bids May 1. CD 5/8, under LB.

▲ **Lauter Constr. Co.**, Otis Bldg., Phila., Pa. CA **$4,989,000**. 814 HOUSING unit Diamond area;

E. J. Lucarelli & Co., 22 Orchard St., Jersey City, N. J. CA **$3,077,000**. 308 HOUSING unit, Diamond area, PHILA., PA. Phila. Housing Auth., 42 S. 15 St., Phila., Pa. CD 4/9, under LB.

▲ **Turner Constr. Co.**, 1500 Walnut St., Phila., Pa., CA **$4,000,000**. SHOPPING CENTER, and parking area, Roosevelt Blvd., Magee Ave., etc., PHILA. PA. Boulevard Center, Inc., Maurice R. Massey, Jr., pres., 1426 Walnut St., Phila. Pa. Sweet & Schwartz, 156 N. 20 St., Phila., Pa., archts.

SOUTH

BIDS ASKED—HEAVY CONSTRUCTION

† **Tenn., Chattanooga**—APPROACH LIGHT SYS.—B.A. 6/3—Civil Aeronautics Admin., 50 Seventh St. N.E., Atlanta 5, Ga., neon approach lighting sys., Proposal No. 22-303. CD 2/19.

BIDS ASKED—BUILDINGS

▲ **Tenn., Manchester**—HOSPITAL—B.A. 6/20—City, City Hall, Coffee Co., Manchester, hospital. $1,000,000. Bianculli, Palm & Purnell, 501 Cherry St., Chattanooga, archts. CD 5/8-51.

HEAVY CONSTRUCTION

LOW BIDS AND CONTRACTS

▲ † **Virginia Engineering Co.**, Melson Blvd., Newport News, Va., LB **$3,109,000**, HOUSING in Shellbank area, Inv. 52-31, LANGLEY AIR FORCE BASE, VA. U. S. Eng., foot of Front St., Norfolk, Va. Bids Apr. 30, CD 4/4.

FLORIDA—State Rd. Dpt., Tallahassee,

Geo. E. Bunnell, Inc., North Miami Beach, Fla., CA **$740,056**, grading, stabilizing, paving, constr. 17 bridges, etc. State Rd. 90, between Carnestown and point approx. 8 mi. west, Job 0301-202, FAP F-012-1 (3). Collier Co. Bids May 31, awarded Apr. 30. CD 4/10, under CA.

▲ **ALABAMA**—State Hy. Dpt., Montgomery,

Scott Constr. Co., Thomasville, Ga., LB, **$77,259**, overpass 0.049 mi. over Seaboard R. R. on Jacksonville-Angele Station Rd., FA-S 93 (1) and S.G. 93 (1) Calhoun Co.;

G. W. Norrell Contg. Co., Georgiana, Ala., LB, **$248,659**, bridge 0.088 mi. over Cahaba River on U. S. 31, F.I. 147 (3), Shelby and Jefferson Counties;

Goodwyn & Murphree, Box 388, Troy, Ala., LB, **$82,544**, bridges, culverts 0.125 mi. Comer-Spring Hill and Clayton-Smut Eye Roads, FA-S-165 (3) and 166 (2), Barbour Co.;

W. C. Howton Constr. Co., 3904 10 Ave. N., Birmingham, Ala., LB, **$1,103,800**, Ensley Overpass 0.622 mi. UG 316 (2) Proposal B and C, Jefferson Co.;

cancelled bids to have been opened May 16, bridge 0.228 mi. over Horse Creek on Putnam-Nanafalia Road, SACP 6101-A, Marengo Co. CD 5/7.

† **J. M. Brown Constr. Co.**, P.O. Box 102, Shreveport, La. LB **$833,743**. aircraft shop and base shop Lake Charles Air Force Base, Inv. 52-36, LAKE CHARLES, LA. U. S. Eng., 606 Santa Fe Bldg., Galveston, Tex Bids May 14. CD 4/2.

BUILDINGS

LOW BIDS AND CONTRACTS

Harry B. Graham Co., 702 Natl. Bank Bldg., Charlottesville, Va., LB **$893,924**, HOSPITAL, CHARLOTTESVILLE, VA. Martha Jefferson Hospital & Sanatorium, 459 Locust Ave., Charlottesville, Va. Stainback & Scribner, 112 3rd St. N.E., Charlottesville, Va., archts. CD 4/11.

▲† **J. A. Jones Constr. Co.**, 209 W. 4 St., Charlotte, N. C., LB **$1,396,850**. WAREHOUSE, equip. maintenance shop, etc. Inv. 52-33, FORT EUSTIS, VA. U. S. Eng., foot of Front t., Norfolk, Va. Bids May 14. CD 4/25.

Virginia Engineering Co., Nelson Bldg., Newport News, Va., CA. **$857,000**. B.O. QUARTERS and AUTOMOTIVE SHOPS, Eng 44-110-52-32, Spec. 744. FORT EUSTIS, VA. U. S. Eng., foot of Front St., Norfolk, Va. Bids May 8. CD 5/15, under LB.

▲ **Housing Engineering Co.**, 217 E. Baltimore St., Baltimore, Md., LB **$2,198,000**. construct, manage, finance, HOUSING, Dam Neck, OCEANA, VA. P. Wks. Officer, Fifth Naval Dist., Naval Base, Norfolk 11, Va. Bids Mar. 27. CD 2/19.

▲ **M. B. Kahn Constr. Co.**, 1113 Blossom St., Columbia, S. C. LB **$4,235,000**. general contract;

Miller Electric Co., 1420 Lady St., Columbia, S. C. LB **$749,250**, electrical work;

William H. Singleton Co., 1240 Jefferson Drives Hy., Arlington, Va., and **W. H. Sullivan**, Greensboro, N. C. LB **$1,946,636**. mechanical work for teaching HOSPITAL, CHARLESTON, S. C. Medical College, State of South Carolina, Charleston, S. C. Bids May 15. CD 3/19.

▲ **Paul Smith Constr. Co.**, 310 N. Rome Ave., Tampa, Fla., Owner Builds, **$2,500,000**, 320 RESIDENCES, COCOA, FLA.

▲ **Westinghouse Electric Corp.**, East Pittsburgh, Pa., CA, **$2,368,000**, two 40,000 kw TURBINE GENERATOR UNITS, for expansion to city electric power system, JACKSONVILLE, FLA. City, City Hall, Jacksonville, Fla. Reynolds, Smith & Hills, 227 Park St., Jacksonville, engrs. CD 11/13/46.

▲ **Daniel Constr. Co., Inc. of Alabama**, 822 7 Ave. S. Birmingham, Ala., LB, **$5,000,000**, PLANT addns., GADSDEN, ALA. Goodyear Tire & Rubber Co., 1144 E. Market St., Akron, O. Bids Apr. 25. CD 4/23.

Schickli Contg. Co., E. Jefferson St., Louisville 4, Ky. LB **$883,000**. County HOSPITAL, ELIZABETHTOWN, KY. Hardin Co., Fiscal Court, Elizabethtown, Ky. Bids May 17. CD 5/5.

Lamar Haven Homes, Inc., 4941 Hy. 78, Memphis, Tenn., Owner Builds. Approx. **$700,000**. 73 RESIDENCES, MEMPHIS, TENN. W. Livaudais, 2834 Poplar Ave., Memphis, Tenn., archt.

MIDDLE WEST

BIDS ASKED—HEAVY CONSTRUCTION

▲† **O., Akron**—APRON and TAXIWAY PAVING, etc.—B.A. On Or About 6/24—U. S. Eng., 237 Fourth Ave., Huntington 18, W. Va., apron and taxiway paving, fuel storage, hangar, warehouse, paint, oil and dope storage, motor service shop, overall clearing and grading, utilities and roads at Akron-Canton Airport, Serial No. ENG 46-022-52-124. Plans deposit $25. CD 4/18.

BIDS ASKED—BUILDINGS

▲ **Mich., Detroit** — CITY-COUNTY — B.A. 6/3 — City-County, Detroit-Wayne Joint Bldg. Auth., A. E. Cobo, chn., City Hall, 550,000 sq. ft. cellular steel sub floors for city-county bldg., incl. complete header sys. for elec. and communication sys. $17,000,000. Plans deposit $35 refundable. Harley, Ellington & Day, Inc., 153 E. Elizabeth St., archt. CD 1/16/51.

HEAVY CONSTRUCTION

LOW BIDS AND CONTRACTS

▲ **ILLINOIS**—State Div. Hys., Springfield,

Triangle Constr. Co., 480 N. Evergreen St., Kankakee, Ill. LB, **$289,905**, earth grading, granular embankment 4.58 mi. on Ill. 26, Kankakee Co.; LB, **$127,090**, conc. base course wid'n. 6.64 mi. Ill. 152 Perry Co.; LB, **$154,997**, bit. resurf. 4.58 mi. Ill. 56, Kankakee Co.;

Arcole Midwest Corp., 3225 Main St., Evanston, Ill., LB. **$556,000**, bit. resurf. 22.27 mi. U.S. 45, Effingham, Shelby, Cumberland and Coles Counties; LB, **$299,373**, bit. resurf. 3.54 mi. Ill. 60, Chicago, Cook Co.;

Maclair Asphalt Co., Inc., 6000 Collinsville Rd. East St. Louis, Ill., LB, **$338,415**, bit. resurf. 12.34 mi. Ill. 43 and U.S. 460, St. Clair Co.; LB, **$126,736**, bit. resurf. 4.42 mi. Ill. 27, Clinton Co.;

Crown Rock Asphalt Co., 30 N. La Salle St., Chicago, Ill., LB, **$96,601**, bit. resurf. 3.66 mi. U.S. 45, Will Co.;

Starr Engineering Co., 15 4 Ave., Joliet, Ill., LB. **$113,523**, grav. or crushed stone base course 4.71 mi. F.A.S. 308, Will Co.;

Rockford Black Top Constr. Co., 1615 Westchester Dr. Rockford, Ill., LB, **$66,869**, bit. resurf. 2.31 mi. U.S. 20, Freeport, Stephenson Co.;

Orr Contg. Co., 27 E. 19 Pl., Chicago Heights, Ill., LB, **$528,000**, c.conc. and building 2 bridges 4.24 mi. Ill. 1, Iroquois Co.;

Vermillion Constr. Co., 914 E. Main St., Streator, Ill. LB, **$89,976**, c.conc. base course 6.36 mi. Ill. 17 and 116A, Marshall Co.;

Gallagher Asphalt Co., 181 St. and Indiana Ave., Thornton, Ill., LB, **$176,871**, bit. resurf. 6.36. mi. Ill. 17 and 116 A, Marshall Co.;

I. D. Lain Co., 1900 E. Adams St., Springfield, Ill., LB, **$221,236**, c.conc. base course and ditch reconstruction 8.29 mi. U.S. 67, Morgan and Scott Counties;

Mautz & Oren Inc., 109½ Banker St., and **C. J. Moritz**, Register Bldg., both Effingham, Ill., LB **$490,729**, c.conc. base course 6.24 mi. U.S. 45 and 1.1 mi. U.S. 40 and 45 Effingham Co.;

Mitchell Constr. Co., 216 E. Madison St., Herrin, Ill., LB. **$292,167**, c.conc. and grav. or crushed stone base course wid'n. with bit. Ill. 14, Franklin Co.;

Central Eng. Co., 2531 Rockingham Rd., Davenport, Ia., LB, **$4,663,343**, bit. resurf. 8.18 mi. U.S. 6, Henry Co.;

Trompeter Constr. Co., 2428 4 St., Peru, Ill., LB. **$85,742**, grav. or crushed stone surf. course 3.46 mi. F.A.S. 271, La Salle Co.;

H. H. Hall Constr. Co., 211 S. 15 St. E. St. Louis, Ill., LB, **$509,265**, bit. resurf. 2.12 mi. Alt. U.S. 67, Madison Co.;

Madison Constr. Co., P. O. Box 222, Edwardsville, Ill., LB, **$328,147**, c.conc. base course wid'n. 20.72 mi. Ill. 140, Madison Co.;

S. J. Groves & Sons Co., 1104 W. Reynolds St., Springfield, Ill., LB, **$845,000**, concrete base course 22.04 mi. U.S. 45, Effingham, Shelby, Cumberland and Coles Counties;

M. Hoeffken & Hoeffken Bros., Inc., 22 West B St., Belleville, Ill., LB, **$234,285**, c.conc. base course wid'n. and concrete base course 12.04 mi. Ill. 43 and U.S. 460, St. Clair Co.;

Rein & Dahl, Stoughton, Wis., LB, **$156,854**, grav. or crushed stone surf. course 5.59 mi. F.A.S. 198 Whiteside Co.;

Powers-Thompson Constr. Co., 27 S. Chicago St., Joliet, Ill., LB, **$80,455**, c.conc. base course 3.39 mi. U.S. 45, Will Co.;

Strunk Bros., Tiskilwa, Ill., LB, **$72,414**, c.conc., levee constr. 0.32 mi. Ill. 29, Bureau Co.;

H. G. Goelitz Co., 5757 Ogden Ave., Cicero, Ill., LB. **$187,019**, bit. resurf. 3.01 mi. Archer Ave. and 95 St., Cook Co.;

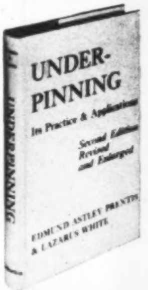
White Constr. Co., 1736 Fullerton Ave., Chicago, 14, Ill., LB, **$265,407**, bit. resurf. 5.9 mi. Ill. 19 and 182, Cook Co.;

Arrow Petroleum Co., 7419 Franklin St., Forest-Park, Ill., LB, **$180,817**, bit. resurf. 7.31 mi. Ill. 152 and U. S. 51, Perry Co.;

Bushman Constr. Co., 4638 Mill Creek Parkway, Kansas City, 2, Mo., LB, **$1,250,192**, c. conc. 10.07 mi. and 1 bridge all on Ill. 164, Greene, Jersey and Macoupin Counties;

Jefferson Asphalt Co., 1209 Casey St., Mt. Vernon, Ill., LB, **$259,677**, bit. resurf. 10.44 mi. Ill. 37, Fayette and Effingham Counties. Bids May 16. CD 5/1.

▲ **Kenny Constr. Co.**, 111 W. Washington St., Chicago, 2, Ill., LB, **$1,117,540**, Congress St. Expressway Drainage for Pulaski St. to Homan Ave., CHICAGO, ILL. Cook Co., County Bldg., Chicago, 2, Ill. Bids May 13. CD 5/7.


UNDER-PINNING
Its Practice & Applications
Second Edition Revised and Enlarged
EDMUND ASTLEY PRENTIS & LAZARUS WHITE

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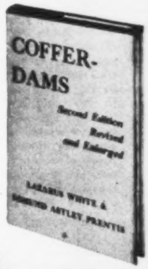
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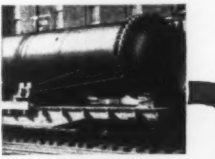

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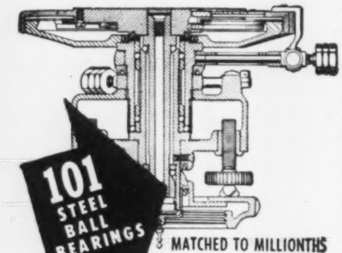

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BUILDINGS

LOW BIDS AND CONTRACTS

Kayvar, Inc., 2700 Lorain Ave., Cleveland, O. Owner Builds. Approx. **$850,000.** 65 HOUSES, Archmere Ave. near State Rd., CLEVELAND, O. Jack Small, c/o owner, engr.

▲ † **E. I. de Pont de Nemours,** du Pont Bldg., Wilmington, Del., CA, **$18,487,500,** will construct and operate expansion smokeless power production; CA, **$2,400,000,** expansion of facilities at Indiana Ordnance Works, CHARLESTOWN, IND. U. S. Eng., 830 W. Broadway, Louisville 1, Ky.

Ragner Benson, Inc., 4744 W. Rice St., Chicago, 51, Ill., CA, **$1,100,000,** 2 story FACTORY, HUNTINGTON, IND. Asbestos Mfg. Co., Div. of Thermoid Co., Whitehead Rd., Trenton N. J. Awarded May 12.

Gust K. Newberg, 2040 N. Ashland St., Chicago, 14, Ill., CA, **$700,000,** DIAL EXCHANGE Bldg., LA GRANGE, ILL. Illinois Bell Telephone Co., 206 W. Washington St., Chicago, 6, Ill. Holabird & Root & Burgee, 180 N. Wabash St., Chicago, 1, Ill., archts. Awarded May 13.

Stoltzner Bldg. Co., 5500 W. Lawrence St., Niles, Ill., Owner Builds, **$700,000,** 60 RESIDENCES, NILES, ILL. John K. Neebe, 2713 N. Kedvale St., Chicago, 41, Ill., archts. Awarded May 15.

▲ **Darin & Armstrong, Inc.,** 2041 Fenkel St., Detroit, Mich. CA. approx. **$10,000,000.** 1 story, brick, steel, concrete jet engine PLANT, FLINT, MICH. Chevrolet Motor Div. General Motors Corp., General Motors Bldg., Detroit, Mich. Bids Apr. 30. CD 4/29.

Alfred Building Corp., 9030 E. Outer Dr., St. Clair Shores, CA, **$700,000.** 65 brick single ranch HOUSES, O'Conner St., CLAIR SHORES, MICH. Linda Park Subdivision, H, M. Seldon Co., 22331 O'Conner St., St. Clair Shores, Mich.

WEST OF MISSISSIPPI

BIDS ASKED—HEAVY CONSTRUCTION

▲ **Tex., Houston**—WHARF—B.A. 6/6—Harris County Ship Channel Navigation Dist., Wharf 13, North Side Turning Basin, wharf, adjacent City Dock 9, incl. steel piling, bulkhead with 2 levels. $1,000,000. Plans deposit $25. Lockwood & Andrews, 904 Union Natl. Bank Bldg., engrs. CD 9/19.

▲ **South Dakota**—RURAL DISTRIBUTION LINES—B.A. 6/10—West Central Electric Co-operative, Murdo, construct 724 mi. rural distr. lines, Jones, Lyman and Stanley Counties, $875,000; 558 mi. rural distr. lines and 11.25 mi. of conversion, Haakon, Jackson and Wasnabaugh Counties, $500,000. Ulteig Eng. Corp., 1114½ Front St., Fargo, N. D., engrs. CD 1/5/51.

▲† **Nebraska**—B.A. 6/12—Bureau Reclamation, Dpt. Interior, Superior, earthwork, structures, Franklin Canal, Station 0 plus 42.4 to Station 750 plus 00 and drains, Bostwick Div. Spec. DC-3720, Missouri River Basin Proj. CD 5/25/44.

BIDS ASKED—BUILDINGS

Colo., Englewood—SCHOOL—B.A. 6/4—School Dist. 1, Araphoe County, Englewood, 2 story, part bsmnt., 61x179 ft., brick high school addn. $950,000. T. H. Buell & Co., 730 14 St., Denver, engrs. CD 12/19.

▲ **Tex., Dallas**—POWER PLANT—Bids Asked—Dallas Power & Light Co., Dallas Power & Light Co. Bldg., 70,000 kw electric generating power plant. $4,000,000. CD 10/16/51.

HEAVY CONSTRUCTION

LOW BIDS AND CONTRACTS

▲ **MINNESOTA**—State Hy. Dpt., 1246 University Ave., St. Paul,

Fielding & Shepley, 1248 Bohn Ave., St. Paul, Minn. CA **$660,699.** paving 14 mi. between Cambridge and 3.5 mi. south of North Anoka Co. line, Anoka and Kenabec Counties, CD 5/15 under LB;

Duininck Bros. & Gilchrist, Olivia, Minn. CA **$272,153.** grav. base plant-mixed bit. surf. 26.7 mi. between 0.5 mi. north of Montevideo and 3.5 mi. south of Benson, Chippewa Co.;

Ulland Bros., Austin, Minn. CA **$410,475.** grav. base, plant-mixed bit. surf. 17.2 mi. between 1.5 mi. southeast of Mirbat and Jct. TH 33 (west of Duluth), St. Louis Co.;

W. Hodgman & Sons, Fairmount, Minn. CA **$212,666.** grav. base plant-mixed bit. surf. 16.8 mi. between Osage and Park Rapids, etc., Becker Co.;

Minnesota Valley Improvement Co., Granite Falls, Minn., CA **$96,997.** grav. base, road-mixed surf. 8.5 mi. between Canby and west state line, Yellow Medicine Co.; CA **$97,708.** grav. base, road-mixed bit. surf. 8.1 mi. between south state line and TH 16 (3.5 mi. south of Lakefield), Jackson Co.

Park Constr. Co., 1405 11 Ave., S. Minneapolis, Minn. CA **$82,095.** grading 2.1 mi. between Mora and south Jct. of TH 23, Kanabec Co.;

G. A. Olson Constr. Co., Marshall, Minn. CA **$168,931.** grading 12.2 mi. between Jct. TH 68 in Marshall and north Lyon Co. line, Lyon Co., Bids May 9, CD 4/24.;

Woodrich Constr. Co., Hopkins, Minn. CA **$889,516.** paving 16.5 mi. between Mapleton and Wells, Blue Earth Co., CD 5/15, under LB. Grand total $2,891,240.

▲ **KANSAS**—State Hy. Comn., Junction City,

Koss Constr. Co., Pauline, Kan. CA **$1,282,566.** c. conc. 15.471 mi. Proj. 18-31 FI 01-5 (4), Geary Co.;

List & Clark Constr. Co., Railway Exchange Bldg., Kansas City, Mo. CA **$297,751.** grading 0.88 mi. Proj. 77-31 ER 14 Part II, Geary Co.; grading 3.044 mi., Proj. 77-31 F 055-3 (1), Geary Co. Bids May 2. CD 4/18.

Cullum & Whittle, Great Natl. Life Bldg., Dallas, Tex. CA. **$979,569.** West Bank sewer Interceptor, 24,000 lin. ft. 48 in. pipe, etc., DALLAS, TEX. City, City Hall, Main and Harwood Sts., Dallas, Tex. Bids Apr. 29, awarded May 16. CD 5/6, under LB.

† **A. J. Rife Constr. Co. & Assoc.,** 2608 Inwood Rd., Dallas, Tex., CA. **$945,488,** five 3 story concrete frame airmen's dormitories and grading, Carswell Air Force Base, Inv. No. Eng 41-443-52-34, FORT WORTH, TEX. U. S. Eng., 100 W. Vickery St., Fort Worth, Tex. Bids Mar. 28. CD 5/8, under LB.

▲† **Hinman Bros. Constr. Co.,** 17 W. 56 Ave., Denver, Colo., CA. **$1,490,585,** embankment and spillway, Jemez Canyon Dam and Reservoir, Inv. No. CIVENG 29-005-52-9, NEW MEXICO. U. S. Eng., Box 1538, Albuquerque, N. M. Bids Apr. 30, awarded May 14. CD 5/12, under LB.

BUILDINGS

LOW BIDS AND CONTRACTS

▲ **Ebasco Service, Inc.,** 2 Rector St., New York, N. Y. CA **$13,000,000.** erect POWER PLANT addns., NORTH LITTLE ROCK, ARK. Arkansas Power & Light Co., Simmons National Bldg., Pine Bluff, Ark. CD 6/7/50, under Unclassified, Arkansas.

▲ **Ebasco Service, Inc.,** 2 Rector St., New York, N. Y. CA **$13,000,000.** erect POWER PLANT addns., STAMPS, ARK. Arkansas Power & Light Co., Simmons National Bldg., Pine Bluff, Ark. CD 6/7/50, under Unclassified, Arkansas.

▲ **Madsen Constr. Co.,** 2110 Niiollet Ave., Minneapolis, Minn. LB **$1,412,800.** general contract MOTHERHOUSE, ABERDEEN, S. D. Sisters of The Presentation of the B. V. M., Aberdeen, S. D. Bids May 6. CD 4/2.

FAR WEST

BIDS ASKED—HEAVY CONSTRUCTION

▲ † **Calif., San Diego**—B.O.Q. and OFFICE—B.A. 7/1—Dpt. Navy, San Diego, B.O.Q. and Public Works Office Bldg. NOY 71096, Spec. 32650, $1,000,000. Plans deposit $80.

▲ **Utah**—PIPE LINE—Bids Asked—Salt Lake City Pipe Line Co., North Salt Lake City, Utah, 330 mi. products line. $8,000,000. CD 3/25.

BIDS ASKED—BUILDINGS

▲ **Calif., Long Beach**—SCHOOL—B.A. 6/6—Long Beach Bd. Educ., 715 Locust Ave., Alexander Hamilton Junior High School, $1,350,000. Plans deposit $25. Van Alstine & McLean, 3916 Myrtle Ave., engrs. CD 4/26/51.

▲ **Calif., Riverside**—SOCIAL SCIENCES, etc.—B.A. 6/10—University of California, 405 Hilgard Ave. Los Angeles, social sciences and humanities bldg., $1,280,000, Plans deposit $175. 2 story, 65,000 sq. ft., rein.-con. physical sciences bldg., $850,000. Plans deposit $150. Bennett & Bennett, 116[illegible] E. Colorado St., Pasadena, archts. CD 4/21.

▲ **Calif., Compton**—COLLEGE—B.A. 6/11—Compton Junior College Dist., 601 S. Acacia St., Junior College, Artesia St. and Santa Fe Ave. $3,000,000. Plans deposit $200. Austin, Field & Fry, 2311 W. 3 St., Los Angeles, archts. CD 11/1/50.

▲ **Calif., San Francisco**—DWELLINGS—B.A. 6/17—San Francisco Housing Auth., and San Francisco Co., 440 Turk St., Bernal Dwellings Proj. Cal 1-5 $1,850,000. Plans deposit $100, Wm. G. Merchant, 57 Post St., archt. CD 7/19/49.

▲ **Ore., Portland**—TEACHING HOSPITAL—B.A. 6/17—State Bd. Higher Educ., Eugene, 14 story, teaching hospital University of Oregon Medical School. $6,000,000. Extended date. Plans deposit $200. Lawrence, Tucker & Wallman, Failing Bldg., Portland, archts. CD 4/29.

▲ **Calif., Sacramento**—PRINTING PLANT—B.A. About 7/8—State Div. Architecture, P. Wks. Bldg., general contract printing plant. Plans deposit $100 Wurster, Bernardi & Emmons, Albert W. Kahl, 402 Jackson St., San Francisco, Zone 11, archts. CD 4/9/51.

▲† **Calif., Los Angeles**—HOSPITAL—B.A. 7/29—Veterans Admin., Munitions Bldg., 21 St. and Constitution Ave., Wash., D. C., construction and finishing complete Veterans Administration Hospital (1) general construction; (2) electric elevators; (3) refrigeration equip. and (4) laboratory equip. Spec. 5200, Proj. 12-4075. $19,000,000. CD 3/22/45.

HEAVY CONSTRUCTION

LOW BIDS AND CONTRACTS

▲† **Nomellini Constr. Co.,** P.O. Box 1177, Stockton, Calif. LB **$566,516,** Schedule A; **$1,311,902,** Schedule B; **$1,472,120,** Schedule C, administration bldg., housing, motor pool facilities, etc. at Stead Air Force Base, Eng. 04-203-52-57, RENO, NEV. U. S. Eng., 180 New Montgomery St., .San Francisco, Calif. Bids May 15. CD 4/28.

▲ **CALIFORNIA**—State Div. Hys., 120 S. Spring St., Los Angeles,

Webb & White, 7220½ Melrose Ave., Los Angeles, Calif., LB, **$1,155,929,** two railroad underpasses, 0.7 mi. grading, etc. at Los Angeles River Freeway between Dominquez St. and Del Amo Blvd., Los Angeles Co. Bids May 15. CD 4/24.

CALIFORNIA—State Div. Hys., P. Wks. Bldg., Sacramento,

John C. Gist, 1020 46 St., Sacramento, Calif. CA. **$914,182.** underpasses under tracks of Southern Pacific R.R. tracks at B St. and Elvas Wye, Sacramento Co. Bids Apr. 30, awarded May 14. CD 5/7.

Vido Kovacevitch Co., 4836 Victoria Ave., Los Angeles, Calif., LB, **$908,706**, Section "B" Valley Outfall Sewer Woodley Ave. to Van Owen St., LOS ANGELES, CALIF. City, City Hall, Los Angeles, Calif. Bids May 7. (**Correction**—contractor). CD 5/19, under LB.

Judson-Pacific-Murphy Co., 4300 East Shore Hy., Emeryville, Calif. LB **$938,483**. 120 in. telescope at Lick Observatory on Mt. Hamilton, MT. HAMILTON, CALIF. Bd. Regents, University of California, Admin. Bldg., Berkeley, Calif. Bids May 14, CD 4/8.

BUILDINGS

LOW BIDS AND CONTRACTS

▲† **Grove, Shepherd, Wilson & Kruge**, 120 6 Ave. N. Seattle, Wash., LB, **$2,245,751**, twenty-two 52x103 ft. ammunition MAGAZINES, eleven 31x83 ft. high explosive magazines, three 22x29 ft. fuse and detonator magazines and four 50x203 ft. standard inert warehouses, all rein.-con. at Naval Ordnance Depot, Spec. 30403, BANGOR, WASH. P. Wks. Officer, Thirteenth Naval Dist., 1611 W. Wheeler St., Seattle, Wash. Bids May 15. CD 4/18.

▲† **Stolte Inc.**, 8451 San Leandro St., Oakland, Calif. LB **$1,227,200**. three 225-man BARRACKS, Oakland Army Base, Inv. 04-2C3-52-36, OAKLAND, CALIF. U. S. Eng., 180 New Montgomery St., San Francisco, Calif. Bids May 13. CD 4/30.

▲ **Jas. I. Barnes**, 1119 Montana Ave., Santa Monica, Calif. CA **$1,048,000**, general contract;
Wilner Plumbing Supply Co., Inc., 5812 W. Pico St., Los Angeles, Calif. CA **$391,000**, mechanical contract for WARD Bldgs., Porterville State Home, PORTERVILLE, CALIF. State Div. Architecture, P. Wks. Bldg., Sacramento, Calif. Bids May 13, awarded **May 17.**

Bayshore Constr. Co., 744 Folger St., Berkeley, Calif., LB, **$923,000**, general contract Northern California RECEPTION CENTER, Clinic Institution Calif. Youth Auth., SACRAMENTO, CALIF. State Div. Architecture, P. Wks. Bldg., Sacramento, Calif. Bids May 13. CD 4/17.

ALASKA

BUILDINGS

LOW BIDS AND CONTRACTS

† **S. Bergesen**, Rte. 10, Box 971, Tacoma, Wash., LB **$575,000**. 1 story rein.-con., frame SCHOOL, Aaa 50-A-96, KODIAK, ALASKA, Alaska P. Wks., Dpt. Interior. Juneau, Alaska, Bids. May 14. CD 4/9.

U. S. POSSESSIONS

HEAVY CONSTRUCTION

LOW BIDS AND CONTRACTS

▲ **Rexach & Rivera Constr. Co., Inc.**, Santurce, Puerto Rico, CA **$2,284,755**, Puerto Rico Proj. U-2-1 (1), San Juan-Bayamon Rd. (Martin Pena Channel Bridge), SAN JUAN, PUERTO RICO. Bd. of Awards, Dpt. Interior, Santurce, Puerto Rico. Bridge was designed and the construction will be supervised by D. B. Steinman, consult. engr., 117 Liberty St., New York, N. Y. Bids Apr. 30. CD 4/3.

CANADA

BIDS ASKED—HEAVY CONSTRUCTION

▲ **Ont., Camp Borden**—HANGAR STEEL—B.A. 6/3—Defence Constr. Ltd., 441 Queen's Quay W., Toronto, 314 tons reinforcing steel, for 2 steel hangars at air base. Total ext. $1,500,000. Plans deposit $100. R. P. Opie, c/o owner, regional engr.

▲ **Que., St. Hubert**—HEADQUARTERS—B.A. 6/10—M. P. McAndrew, engr. Defence Constr. Ltd., 1247 Guy St., Montreal, air force command headquarters, an administration section and an operations section at R.C.A.F. Station, $1,500,000. Plans deposit $100.

BIDS ASKED—BUILDINGS

▲ **Que., Montreal**—HOSPITAL—B.A. 6/25—C. D. Goodman, archt., 1818 Sherbrooke St. W., 7 story, bsmnt., rein.-con., structural steel, brick, stone hospital addn., Cote des Neiges and Cote St. Catherine Roads, for Bd. Governors Jewish General Hospital, 3758 Cote St. Catherine Rd. $3,000,000. H. Jasen, 1410 Guy St., engr. CD 4/18/51.

HEAVY CONSTRUCTION

LOW BIDS AND CONTRACTS

▲ **Dominion Bridge Co. Ltd.**, 702 Canada Bldg., Winnipeg, Man., CA, Approx. **$1,000,000**, 1300 tons reinforcing steel for cantilever hangar at Winnipeg Air Base, WINNIPEG, MAN. Defence Construction Ltd., Kensington Bldg., Winnipeg, Man. Bids Apr. 2, awarded May 15.

▲**NOVA SCOTIA**—Dpt. Transport, Hunter Bldg., and Dpt. Hys. and P. Wks., Halifax,
Northern Constr. & J. W. Stewart Co. Ltd., 1304 Hornby St., Vancouver, B. C., CA, Approx. **$5,786,650**, est. $9,600,000, rock filled causeway across Straits of Canso from Cape Porcupine to Blonce Point, Bids May 13. CD 4/8.

▲ **Horton Steel Works Ltd.**, 40 Jennet St., Fort Erie, Ont., CA, **$2,500,000**, supply, erect 7 penstocks each about 275 ft. long with 20 to 30 ft. dia. at Sir Adam Beck-Niagara Generating Station No. 2, Niagara Falls, ONTARIO. Ontario Hydro-Electric Power Comn., 602 University Ave., Toronto, Ont. CD 9/5/50.

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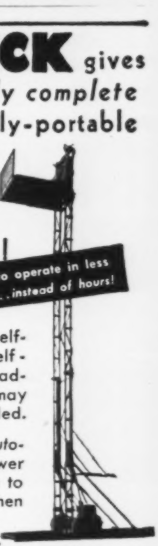

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Bids—Low Bids—Contracts—Second Section

NEW ENGLAND

BIDS ASKED—HEAVY CONSTRUCTION

† **Mass., Hingman—B.A.** 6/5—Dist. P. Wks. Office, First Naval Dist., 495 Summer St., Boston, repairs, replacement railroad rail at U. S. Naval Ammunition Depot, NOY 71985, Spec. 32449. Plans deposit $10. CD 4/6/51, under Public Bldgs.

† **Me., Portland**—PIER—B.A. 6/12—Dist. P. Wks. Office, First Naval Dist., 495 Summer St., Boston, Mass., repairs to Pier F at U. S. Naval Fuel Facility, Long Island, Casco Bay, NOY 720131, Spec. 32483. Plans deposit $10. CD 10/30/51.

BIDS ASKED—BUILDINGS

▲ **Mass., Boston**—HOUSING—B.A. 6/11—Boston Housing Auth., 230 Congress St., 259 housing, Proj. Mass. 200-10, Wood Estate Galvin Blvd., Dorchester. $2,850,000. Plans deposit $100 refundable. Glaser & Gray, 105 Newbury St., Boston, archts. CD 4/25, under LB.

▲ **Mass., Boston**—CHURCH AND MONASTERY—B.A. 6/13—St. Anthony's Shrine, c/o Father Harold R. Blake, 103 Arch St., church and monastery, 114 Arch St. $3,200,000, Extended date. Brother Cajetan, J. B. Baumann, OFM, 44 Whitehall St., New York, N. Y., archt. Maurice A. Reidy, 101 Tremont St., struct. engr. Sears & Kopf, 55 Broadway, New York, N. Y., engrs. CD 4/22.

HEAVY CONSTRUCTION

LOW BIDS AND CONTRACTS

† **T. W. Cunningham, Inc.**, 38 Columbia St., Bangor, Me. and **Stewart & Williams, Inc.**, 185 Water St., Augusta, Me. LB **$468,800.** control tower, operations bldg., Naval Air Station, Spec. 31255, BRUNSWICK, ME. U. S. Eng., 495 Summer St., Boston, Mass. CD 5/14, under CA.

▲ **MASSACHUSETTS**—Commonwealth of Mass., Dpt. P. Wks., 100 Nashua St., Boston,

Groisser & Shlager Iron Works, 84 Washington St., Somerville, Mass. CA **$1,603,817,** est. $1,500,000. Contr. C 2a, steel superstructure for elevated hy. portion J. F. Fitzgerald Expressway, Boston. CD 3/24 under LB.

MASSACHUSETTS—Commonwealth of Mass., Metropolitan Dist. Comn., Parks Div., 20 Somerset St., Boston,

Coleman Bros. Corp., 40 Central St., Boston, Mass. LB Alternate A **$766,839**, Alternate B **$716,699**, Contr. 734, underpass and roadways, Boston. Bids May 15. CD 4/29, under Mass., Boston.

† **Grinnell Co., Inc.**, 131 State St., Boston, Mass. LB Item 1 **$186,066**, Item 2 **$132,535**, Item 3 **$109,867**, Item 4 **$129,730**, Item 5 **$56,336**, Item 6 **$76,199**, Item 7 **$53,531**, repair, replace sprinkler sys., Naval Reserve Shipyard, Spec. 31281. HINGHAM MASS. First Naval Dist., 495 Summer St., Boston, Mass. Bids May 8. CD 4/16.

CONNECTICUT—State Hy. Dpt., Hartford,

Peter Mitchell, Inc., 315 Grenwich Ave., Greenwich, Conn., LB, **$90,824**, trunk line highway, Greenwich;

Velleca & Delucia, Box 35 Station A, New Haven, Conn. LB, **$134,103**, highway Harper's Ferry and Scott Roads, etc. Fed. Aid Proj. UI-138 (5) Waterbury.

John De Michiel & Bro., 58 High St., Torrington, Conn., LB, **$135,925**, bit. macad. about 5,000 lin. ft. Lakeville Road, Rte. 41, S-60, Sharon. Bids May 5. CD 4/30.

BUILDINGS

LOW BIDS AND CONTRACTS

United Engineers & Constructors, Inc., 200 Charles St., Malden, Mass. CA **$500,000.** stand-by PLANT and pipe line, GLOUCESTER, MASS. Gloucester Gas Light Co., 96 Main St., Gloucester, Mass. Luke L. Nakashian, 401 Park Square Bldg., Boston, Mass., engr.

▲ **Frankini Constr. Co., Inc.**, 26 Mystic Ave., Medford, Mass. LB **$1,419,342.** HOUSING, Proj. PHA 15-1, Willis Ave., South Medford, MEDFORD, MASS. Medford Housing Auth., 311 City Hall, Medford, Mass. CD 4/22, under LB.

E. J. Pinney Co., Inc., 220 Dwight St., Springfield, Mass. CA **$492,850.** SYNAGOGUE and CHURCH, Dickinson St., SPRINGFIELD, MASS. Congregation Beth El, 150 Fort Pleasant St., Springfield, Mass. Bids May 12. CD 5/9.

Samuel W. Poorvu, 27 School St., Boston, Mass. CA **$600,000.** POSTAL STATION, Tapley St., SPRINGFIELD, MASS. Louis Herman, 558 Pleasant St., New Bedford, Mass. U. S. P. O. Dpt., lessee. CD 11/9/51.

W. J. Quinn Co., Edson St., Longmeadow, Mass. LB **$558,800**, est. $540,000. Memorial Elementary SCHOOL, SPRINGFIELD, MASS. City, Dpt. P. Bldgs., Municipal Bldg., Springfield, Mass. Bids May 15. CD 4/28.

MIDDLE ATLANTIC

BIDS ASKED—HEAVY CONSTRUCTION

† **Delaware**—B.A. On or About 6/17—U. S. Eng., 121 N. Broad St., Phila., 1, Pa., stabilizing south bank of Chesapeakee and Delaware Canal within the area extending from opposite channel centerline station 50 plus 900 to opposite channel centerline, station 52 plus 100, Civeng 36-109-52-52.

BIDS ASKED—BUILDINGS

† **MARYLAND**—MICROWAVE RELAY BUILDING—B.A. 6/11—U. S. Eng., First and Douglas Sts., N.W., Wash. 25, D. C., microwave relay bldg., Globecom facilities, Silver Hill, Eng. 49-080-52-91-(70). Plans deposit $10.

HEAVY CONSTRUCTION

LOW BIDS AND CONTRACTS

▲ **NEW YORK**—Bureau Contracts & Accounts, The Governor Alfred E. Smith State Office Bldg., Albany,

Frank E. Antolick, Schaghticoke, N. Y., LB **$634,928.** est. $640,000. Corinth Bridge and approaches (Co. Rd.) 0.34 mi., FASS 52-19, Saratoga and Warren Counties;

Tully & DiNapoli, Inc. and Gull Contg. Co. Inc., 33-15 Lawrence St., Flushing, N. Y., LB **$1,981,697,** est. $2,350,000. 0.7 mi. Major Deegan Expressway Extens. Cont. 4, FAMDE 52-3, FAMDEG 52-4, Bronx Co.;

A. E. Ottaviano, Inc., 80 Brook St., Croton-on-Hudson, N. Y., LB **$759,786**, est. $812,000, 1.01 mi. Palisades Interstate Parkway, Pts 1 and 2, PIP 52-1, Orange Co. Bids May 15. CD 5/1.

▲ **NEW YORK**—Bureau Contracts & Accounts, The Governor Alfred E. Smith State Office Bldg., Albany,

Northampton Constr. Corp., Westhampton Beach, N. Y., LB **$742,740,** est. $819,000, stone jetty, beach protection, Shinnecock Inlet, Suffolk Co.;

Edward Acker Corp. & South Shore Contg. & Dredging Corp., 100 West Ave., Patchogue, N. Y., LB **$257,508,** est. $315,675, stone jetty, beach protection, Moriches Inlet, Suffolk Co.;

South Shore Dredging Co., Inc., 100 West Ave., Patchogue, N. Y., LB **$131,450**, est. $190,000, hydraulic fill, beach protection, Moriches Inlet (Pikes Beach) Suffolk Co. Bids May 15. CD 5/1.

▲ **NEW YORK**—Bureau Contracts & Accounts, The Governor Alfred E. Smith State Office Bldg., Albany,

Draicchio & Caradori Constr. Co., Inc., 3 Lombardy St., Lancaster, N. Y., LB **$606,581**, est. $625,000, 3.96 mi. Silver Creek Village; Central Ave. SH 9240, Southwestern Blvd., Pts. 9 and 10 SH 1852, Irving-Silver Creek; SH 5452, Silver Creek connection, RC 52-18, SH 52-4. Chautauqua Co.;

Thomas P. Sapgnoletti, 14 Denton Rd., Binghamton, N. Y., LB **$244,339,** est. $249,000, 0.99 mi. Coxsackie Village S. H. 5369, Coxsackie-Ravena, Pt. 1, S.H. 5198, Greenville-Coxsackie, Pt. 3, S.H. 1365, FARC 52-24, Greene Co.;

Triple Cities Constr. Co. and N. R. Corbisselo, Inc., 17 Tompkins St., Binghamton, N. Y., LB **$1,662,735**, est. $1,665,000, 9.3 mi. New York City Board of Water Supply Roads 4, 6 and 7 (Pepacton Reservoir), 52-BWS 4-6-7, Delaware Co.;

Twin Village Constr. Corp., 166 Gould Ave., Depew, N. Y., LB **$164,392**, est. $180,000. 2.54 mi. Dunkirk-Middle Rd. (Co. Rd. 121), FASS 52-6, Chautauqua Co. Bids May 15. CD 5/1.

▲ **L. I. Waldman & Co., Inc.**, 38-06 28 St., Long Island City, N. Y. LB **$1,409,519.** platform exten., Group X, Times Square, Fifth Ave., Vernon Blvd., Jackson Ave. and Hunters Point Ave. Stations, NEW YORK, N. Y. Bd. Transportation, 370 Jay St., Brooklyn, N. Y., Bids May 8.

Highway Constr. Co., 7 and T Sts. N.E., Wash., D. C., CA **$142,553,** est. $150,000, curb and gutter work at various locations, WASH., D. C. D. C. Hy. Dpt., 14 and Pennsylvania Aves. N.W., Wash., D. C. Bids Apr. 23, awarded May 2. CD 5/9, under LB.

BUILDINGS

LOW BIDS AND CONTRACTS

▲ **Fort Hamilton Realty Corp.**, 16 Court St., Brooklyn 2, N. Y. Separate Contracts. **$700,000**, 6 story, APARTMENT, 221 McDonald Ave.; **$600,000**, 6 story APARTMENT, 243 McDonald Ave., BROOKLYN, N. Y. CD 5/16/51.

Schacht Steel Constr. Inc., 1841 Broadway, New York 23, N. Y. LB, **$100,725**, structural steel for BUILDING 141, Contract PN 20.00023, PORT NEWARK, N. J. Port of New York Auth., 111 8th Ave., New York 11, N. Y. Bils May 12. CD 4/25.

Capitol Constr. Co., Inc., 303 Notre Dame Ave., Wash., D. C. LB **$347,500.** POULTRY BLDG., University of Maryland, COLLEGE PARK, MD. State, Dpt. P. Imprvs., 506 Park Ave., Baltimore, Md. O. E. Adams & R. E. Riggs, 2439 N. Charles St., Baltimore, Md., archts. George & Hartman, 105 E. Pleasant St., Baltimore, Md., mech. engrs. Van Rensselaer Saxe, 1701 St. Paul St., Baltimore, Md., struct. engr. CD 8/6/45.

Jos. F. Hughes & Co., Inc., 509 N. Charles St., Baltimore, Md. LB **$337,996,** est. $300,000. brick, steel, concrete Mars Estates Elementary SCHOOL addn., TOWSON, MD. Baltimore Co., Bd. Educ., Aigburth Rd., Towson, Md. Henry Powell Hopkins, 10 E. Mulberry St., Baltimore, Md., archt. Van Rensselaer Saxe, 1701 St. Paul St., Baltimore, Md., struct. engr. Jas. Posey, 10 E. Pleasant St., Baltimore, Md., mech. engr.

SOUTH

BIDS ASKED—HEAVY CONSTRUCTION

Fla., Winter Park—B.A. After 6/2—City, sanitary sewers in Virginia Heights Section, $150,000. Plans deposit $10. Smith & Gillespie, P.O. Box 1048 Jacksonville, engrs.

† **N. C., Fort Bragg**—AUTOMATIC SPRINKLER SYSTEM—B.A. 6/3 U. S. Eng., 308 Customhouse, Wilmington, automatic sprinkler systems, Bldgs. TW-50 and TR 1050, Eng 31-075-52-26. CD 4/18.

N. C., Salisbury—B.A. 6/3—City, E. L. Hardin, mayor, Salisbury, water works, Sect. 4, raw water pumping station, Sect. 5, electrical; Sect. 6, pumping equip. Pierson & Whitman, Security Bank Bldg., Raleigh, engrs. Bids Mar. 18 rejected. CD 3/26, under LB.

† **S. C., Charleston**—BASE MAINTENANCE SHOP—B.A. 6/3—U. S. Eng., Custom House, construct base maintenance shop at Charleston Air Base, North Charleston, No. 38-081-52-33. CD 5/7.

† **S. C., Charleston**—MAINTENANCE SHOP—B.A. 6/4—U. S. Eng., Custom House, automobile maintenance shop at Charleston Air Base, North Charleston, 38-081-52-66. CD 5/7.

† **S. C., Sumter**—OPERATION and DISTRIBUTION SYSTEM—B.A. 6/4—U. S. Eng., Custom House, Charleston, operation and distr. sys. at Shaw Air Force Base, 38-081-52-63. CD 9/25.

† **N. C., Fayetteville**—B.A. 6/5—U. S. Eng., 308 Custom House, Wilmington, misc. drainage, storm sewers erosion control, Eng. 31-075-52-20.

†**Kan., Olathe**—BUILDINGS—B.A. 6/10—U. S. Eng., 1709 Jackson St., Omaha, Neb., masonry building addns., heating and electrical alterations. CD 6/1.

▲ † **Kentucky**—B.A. 6/20—U. S. Eng., 830 W. Broadway, Louisville, Zone 3, structures pumping plants at Lee's Lane, Paddy's Run, Mill Creek, $1,200,000. Plans deposit $15.

† **N. C., Greensboro**—APPROACH LIGHT SYS.—Bids Asked—Civil Aeronautics Admin., 50 Seventh St., N. E. Atlanta 5, Ga., neon approach light sys. at Greensboro-High Point Airport, Proposal No. 22-302. CD 5/22/46.

BIDS ASKED—BUILDINGS

Ala., Troy—COURT HOUSE—B.A. 6/10—Pike Co., court house, $500,000. Plans deposit $50. Extended date. Minch, Kershaw & Crump, 230 S. Perry St., Montgomery, archts. CD 4/23.

▲ **Tenn., Knoxville**—MEMORIAL CENTER—B.A. 6/11—University of Tennessee, Administration Bldg., construct Carolyn P. Brown Memorial Center. $1,300,000. Barber & McMurry, 2505 Kingston Pike N.W., archts. CD 2/12.

† **N. C., Camp Lejeune**—STORAGE—B.A. 6/2—P. Wks. Office, Bldg. 1005, erecting storage bldg. for 2nd Bridge Company, Spec. 34085. Plans deposit $10.

N. C., Wilmington—CHURCH—B.A. After 6/2—Temple Baptist Church, 17 and Market Sts., church. $300,000. Plans deposit $30. CD 1/16/46.

Ky., Whitesburg—SCHOOL—B.A. 6/5—Letcher Co. Bd. Educ., Fleming-Neon School. Plans deposit $25.

La., Baton Rouge—CHURCH—B.A. 6/5—St. Anthony of Padua Church, c/o Diboll-Kessels & Assoc., archts., 637 Pere Antoine Court, New Orleans, church.

Va., Charlottesville—PHYSICS BLDG.—B.A. 6/8—University of Virginia, Charlottesville, physics bldg. Plans deposit $40. Eggers & Higgins, 100 E. 42 St., New York, N. Y., archts. CD 10/11/44

HEAVY CONSTRUCTION

LOW BIDS AND CONTRACTS

NORTH CAROLINA—State Hy. & P. Wks. Comn., Raleigh,

rejected bids Apr. 29, bridge over Yadkin River on County Rd. at High Rock, Davidson and Rowan Counties. LB $208,362. CD 5/5, under LB.

Southern Bell Telephone Co., Hurt Bldg., Atlanta, Ga., Owner Builds. telephone lines, TAYLORSVILLE, N. C.

GEORGIA—State Hy. Dpt., 2 Capitol Sq., Atlanta,

H. G. Smith, Fitzgerald, Ga., CA, **$269,580**, bridge on Etowah River on relocation of Marietta-Cartersville Rd., FI—484 (4) CT 1, Bartow Co.;

E. H. Hines Constr. Co., Inc., Greenwood, S. C., CA, **$249,469** superstructure for bridge at Broad River on Goshen to S.R. 72 Road (S.R. 79) SAP 1575 (8), Lincoln and Elbert Counties. Bids May 9, awarded May 14. CD 4/30.

▲ **GEORGIA**—State Hy. Dpt., 2 Capitol Sq., Atlanta,

Marion Constr. Co., Ocala, Fla., CA, **$148,615**, grading, base and surf. 7.56 mi. Tifton to Irwinville Rd. S-0544 (1), SAP 1225-A (4), Tiff Co.;

T. D. Lamb, Jr. and Holland Constr. Co., Vidalia, CA, **$399,937**, grading, paving, widn., resurf. 13.201 mi. Hazelhurst-Uvalda Rd. S.R. 135, F 090-1 (4), Jefferson Davis and Montgomery Counties;

Ledbetter-Johnson Co., Rome, Ga., CA, **$779,107** wid'n., resurfacing 11.803 mi. Cartersville to Chatsworth Rd., F018-1 (5) Gordon Co.;

Hugh Steele Constr. Co., Centre, Ala., CA, **$691,490**, grading 12.78 mi. Macon to Forsyth Rd., FI 005-2 (1), Bibb and Monroe Counties;

Leo T. Barber, Moultrie, Ga., CA, **$69,650**, base and surf. 5.166 mi. and one bridge on Pearson to Homerville Road S 0594 (2), Atkinson Co.;

Coffee Constr. Co., Eastman, Ga., CA, **$77,795**, grading, base, surf. 5.047 mi. Nashville to Tifton Road, S 0553 (3), Berrien Co.;

W. L. Robinson Constr. Co., College Park, Ga., CA, **$74,007**, grading, base and surf. 4.57 mi. Sandersville to Bartow Road, S 0689 (4) Washington Co.;

Acme Constr. Co., Cochran, Ga., CA, **$75,794**, grading, base and surf. 6 mi. Cordele to Rebecca Road, SAP 1698-A (8), Crisp Co.;

W. L. Cobb Constr. Co., Decatur, Ga., CA, **$78,821**, grading, base, surf. 4.791 mi. Ellaville to Andersonville Road, S 1171 (1) Schley Co.;

(Continued on page 99)

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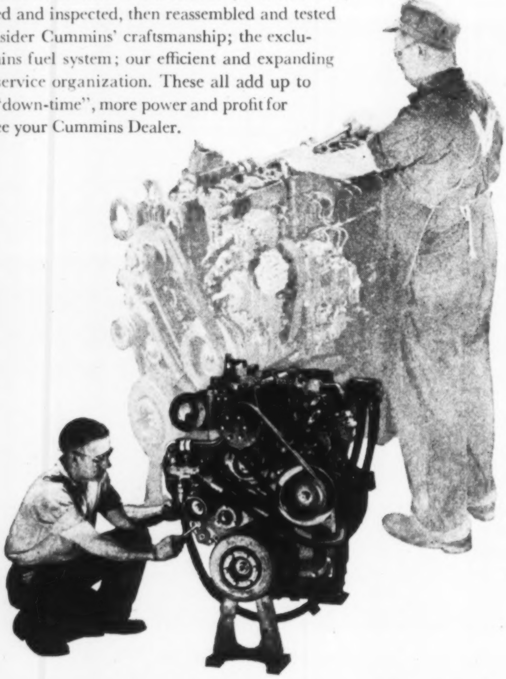

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(Continued from page 96)

Crummey & Crummey, Rochelle, Ga., CA, **$80,096,** grading, base and surf. 4.006 mi. and one bridge on Rochelle to Hawkinsville Rd., S 1574 (4) Wilcox Co.;

Claussen-Lawrence Constr. Co., 1394 Gwinnett St., Augusta, Ga., CA, **$132,339,** grading, base and surf. 7.413 mi. Waynesboro to McGean Road, S 0807 (3), Burke Co.;

G. H. Law, Gainesville, Ga., CA, **$67,693,** grading, base and surf. 4.114 mi. Jackson to Covington Road S 1573 (3), Butts and Newton Counties. Bids May 9 awarded May 14. Grand total $2,675,344. CD 4/30.

† **Standard Dredging Corp.,** 80 Broad St., New York, N. Y., CA, **$664,580,** dredging Intracoastal Waterway, Oak Hill to Haulover Canal, CIVENG 08-223-52-66, FLORIDA. U. S. Eng., P. O. Box 5470, Jacksonville, Fla. Bids Apr. 29. CD 5/9, under LB.

† **Chavis Constr. Co.,** 3107 N. Davis St., Pensacola, Fla. LB **$260,436,** administration bldgs., warehouses and shops at Auxiliary Field 3, EGLIN AIR FORCE BASE, FLA. U. S. Eng., P. O. Box 1169, Mobile, 7, Ala. Bids Apr. 24. CD 3/24.

▲ † **Malan Plumbing Co., Inc.,** 25-09 42 Road, Long Island City, N. Y., CA, **$1,186,800,** aircraft refueling system, Mac Dill Air Force Base, TAMPA, FLA. U. S. Eng., 575 Riverside Ave., Jacksonville, Fla. CD 5/6, under LB.

M. R. Thomason & Holt Constr. Co., Bell Bldg., Montgomery, Ala., CA, **$205,496,** sanitary sewers, MONTGOMERY, ALA. City, City Hall, Montgomery, Ala. Bids Apr. 29. CD 4/14.

Delta Paving Co., P. O. Box 4446, Fondren Station, Jackson, Miss. CA **$162,811.** street imprvs., HOUSTON, MISS. Town, Houston, Miss. Bids May 6. CD 4/17.

† **Forcum-James Co.,** Dyersburg, Tenn. CA **$694,100.** upper bank paving at several localities on banks of Mississippi River between Miles 245 and AMP, Inv. 52-145, LOUISIANA, MISSISSIPPI and ARKANSAS. U. S. Eng., P. O. Box 60, Vicksburg, Miss. CD 4/17, under LB.

LOUISIANA—State Hy. Dpt., Highway Office Bldg., Baton Rouge,

W. R. Aldrich & Co., Box 1751, Baton Rouge, La. CA. **$707,164.** concrete slab span bridges, wid'n. asph. surf. 13.343 mi. State Rte. 33 between Hammond and Amite, S. P. 17-04-06 and 17-05-08, Tangipahoa Parish. Bids Apr. 23, awarded May 13. CD 5/1, under LB.

LOUISIANA—State Hy. Dpt., Highway Office Bldg., Baton Rouge,

Barber Bros., 2636 Dougherty Dr., Baton Rouge, La. CA **$547,995.** wid'n. asph. surf. 11.4 mi. U. S. Hy. 190 between Denham Springs and Livingston, S. P. 13-06-14, F. A. Proj. F 79 (6), Livingston Parish. CD 4/30, under LB.

O. J. Clements & Burke & Kingston, P. O. Box 352, New Iberia, La. CA **$364,800.** 2.5 mi. b. conc. sidewalks, HOUMA, LA. City, Houma, La. Bids Apr. 9. CD 4/20/50.

W. L. Hailey & Co., 314 42 Ave. N., Nashville, Tenn. LB **$538,660.** reinforcing mains, NASHVILLE, TENN. City, City Hall, Nashville, Tenn. Bids May 6. CD 3/28.

Volz Constr. Co., Ripley, Tenn., CA. **$129,508,** water filtration plant, RIPLEY, TENN. City, Ripley, Tenn. Bids May 9.

BUILDINGS

LOW BIDS AND CONTRACTS

John P. Pettyjohn & Co., Lynchburg, Va., LB **$833,933,** Stonewall Jackson HOSPITAL, LEXINGTON, VA. City, Lexington, Va. Bids about 5/1. CD 3/20.

▲ **Diamond Springs Homes,** c/o Goodman-Segar-Hogan Inc., Dickson Bldg., Norfolk, Va. Owner Builds. **$4,000,000.** 500 RESIDENCES, NORFOLK, VA.

McIrwin Homes Corp., Tareyton Lane, Norfolk, Va. Owner Builds. **$300,000.** RESIDENCES, NORFOLK, VA.

Barge-Thompson Co., 136 Ellis St. N.E., Atlanta, Ga. CA, **$600,000,** Thomas K. Glenn MEMORIAL BLDG., ATLANTA, GA. Emory University, 36 Butler St. S.E., Atlanta, Ga.

Fred D. Wallace, c/o Gamble, Pownall & Gilroy, archts., 1406 E. Las Olas Blvd., Ft. Lauderdale, Fla., Owner Builds, **$300,000,** APARTMENT UNITS, FORT LAUDERDALE, FLA.

W. F. Chatlos, 355 Ocean Blvd., Miami Bech, Fla., Owner Builds, **$350,000,** APARTMENT UNITS, MIAMI BEACH, FLA.

Keller Constr. Corp., 7900 Palm St., New Orleans, La. CA **$436,850.** Warren Easton High SCHOOL addns., alterations, NEW ORLEANS, LA. Orleans Parish School Bd., 703 Carondelet St., New Orleans, La. Bids May 5. CD 4/29.

V. L. Nicholson Co., 611 S. Central St., Knoxville, Tenn. CA Approx. **$800,000.** PLANT addns., KNOXVILLE, TENN. Electro Manganese Corp., Proctor St. N. W., Knoxville, Tenn. CD 5/16.

Sam Melson, Shelbyville, Tenn., LB **$641,900,** LIBRARY, DORMITORY for Girls at Middle Tennessee State College, MURFREESBORO, TENN. State Dpt. Educ., State Office Bldg., Nashville, Tenn. Bids May 6. CD 4/17.

MIDDLE WEST

BIDS ASKED—HEAVY CONSTRUCTION

▲ **Wis., Milwaukee**—TERMINAL BLDG.—B.A. 6/3—Milwaukee Co., Court House, (first unit), 1 and 2 story, and 6 story, 60x300 ft., 60x600 ft. terminal bldg. $1,015,000. Plans deposit $25. John Messmer, co. archt. E. A. Howard, co. engr. CD 3/27/51.

† **Illinois**—B.A. 6/10—U.S. Eng., 834 U.S. Court House & Custom House, 1114 Market St., St. Louis, 1, **Mo.** constr. levees and road surfacing on 2 highway road approaches (East Side Levee & Sanitary District) Proj. Item IV B, Madison and St. Clair Counties, Illinois on south bank Cahokia Creek Diversion Channel distance, 13,525 ft., involving, 1,000,000 cu. yd. levee embankment, etc. Inv. No. CIVENG 23-065-52-94. CD 7/23/45.

† **O., Dayton**—ENGINE SHOP—B.A. 6/19—U.S. Eng., 830 W. Broadway, Louisville, Ky., engine shop bldg. extension, Wright Patterson Air Force Base. $750,000. Plans deposit $15. CD 9/27.

† **O., Dayton**—FILM STORAGE—B.A. 6/24—U.S. Eng., 830 W. Broadway, Louisville, Ky., film storage bldg. addn., Wright-Patterson Air Force Base. $400,000. Plans deposit $15. CD 9/27.

† **O., Dayton**—BUILDING MODIFICATION—B.A. 6/25—U.S. Eng., 830 W. Broadway, Louisville, Ky., modification of Bldg. 24-C, Wright Patterson Air Force Base. $200,000. Plans deposit $15. CD 9/27.

BIDS ASKED—BUILDINGS

O., Youngstown—HIGH SCHOOL—B.A. 6/10—Bd. Educ., 20 W. Wood St., Woodrow Wilson High School alterations, addns., E. Indianola Ave. and Gibson St. $650,000. Plans deposit $25. Damon, Worley, Samuels & Assoc., 215 Lincoln Ave., archts. CD 4/25/50.

Ind., Richmond—SCHOOL—B.A. 6/12—Bd. School Trustees, High School Bldg., Richmond, 2 story, brick, stone, rein.-con. grade school bldgs. addns. $650,000. McGuire & Shook, 1400-01 Fletcher Trust Bldg., Indianapolis, Zone 4, archts. CD 2/5.

† **Ind., Jeffersonville**—SHOP—B.A. 6/17—U. S. Eng., 830 W. Broadway, Louisville, Ky., parachute repair shop, Jeffersonville Q.M. Depot. $600,000-$700,000. Plans deposit $15. Bids Feb. 19, rejected. CD 2/26, under LB.

▲ **Mich., Port Huron**—CITY-COUNTY—B.A. About 6/30—Comrs. City of Port Huron and St. Clair Co. Port Huron, brick, steel, concrete city-county bldg. $2,200,000. Smith-Hinchman & Grylls, Inc., 800 Marquette Bldg., Detroit, archt. Wyeth & Harmon, Inc., Port Huron, engr. CD 4/1.

▲ **Mich., Romulus**—GAS TURBINE—Bids Asked—Ford Motor Co., 3000 Schaefer St., Dearborn, 1 story, rein.-con. gas turbine bldg. Albert Kahn Associated Architects & Engineers, Inc., 345 New Center Bldg., Detroit, engr. and archt.

SOON LETS CONTRACT—BUILDINGS

▲ **O., Toledo**—RESIDENTIAL, etc.—Soon lets contract—Young Womens Christian Assn., 13 and Jefferson Sts., residential and activities wing for Y.W.C.A. $1,300,000. Bellman, Gillette & Richards, 518 Jefferson St., archts. CD 9/12.

HEAVY CONSTRUCTION

LOW BIDS AND CONTRACTS

ILLINOIS—State Div. Hys., State Capitol, Springfield,

Madison Constr. Co., Edwardsville, Ill., CA **$680,000.** bit. resurf. 28.11 mi. Ill. Rtes. 16 and 2 from about 1½ mi. east of Pana west and southwesterly to near west limits of Schram City, Christian and Montgomery Counties. Bids Apr. 25. CD 4/30, under LB.

BUILDINGS

LOW BIDS AND CONTRACTS

▲ **Friedhaven Constr. Co.,** 1st Federal Savings & Loan Bldg., Akron, O. Owner Builds. **$5,000,000.** 250 HOMES in Delia Estates, south of Good Park golf course off Delia Ave. AKRON, O. CD 12/21.

▲ **Puritas Village, Inc.,** Maxwell H. White, pres., 802 Finance Bldg., Cleveland 15, O. Owner Builds. **$2,000,000.** 71 frame HOUSES, incl. 142 units, on 20 acre site, Whitecliff Rd. near Puritas Rd., CLEVELAND, O.

▲ **Airway Constr. Co.,** Callahan Bldg., Dayton, O., CA. Approx. **$9,000,000.** construct, manage, finance, (2nd unit) 1,000 HOUSING units known as Page Manor 3 and 4, for personnel at Wright-Patterson Air Force Base, on 100-acre tract south of Airway and west of Spinning Rds., DAYTON, O. Link Cowen, Shawnee, Okla., Clinton & John D. Murchislon, Dallas, Tex., Norman K. Winston & David Muss, 22 W. 48 St., New York, N. Y. CD 12/21, under CA.

▲ **Fullerwood Homes, Inc.,** 27100 Lake Shore Blvd., Euclid, O. Owner Builds. **$2,500,000.** 110 frame, brick, veneer HOUSES, Lloyd Rd., Parkwood Dr., Fullerwood Dr., E. 271 St., 110 E. 272 St., E. 273 St. EUCLID, O. Stanley Godnavoc, 27100 Lake Shore Blvd., Euclid, O., engr.

▲ **Sam Uhlin,** 4683 Broadale Ave., Cleveland 9, O. Owner Builds. **$1,650,000.** 55 ranch-style HOME DEVELOPMENT, Pearl and Pleasant Valley Rds., MIDDLEBURG HEIGHTS, O.

▲ **Carl M. Geupel Constr. Co.,** 1919 N. Meridian St., Indianapolis, Ind., CA, **$1,200,000,** brick, steel, rein.-con. MARKET CENER, 217 acre plot, Sherman Dr. 21 to 25 Sts., INDIANAPOLIS, IND. Indianapolis Produce Terminal, Inc., Phillip Caito, pres., 502 S. New Jersey St., Indianapolis, Ind. Awarded May 9. CD 16/6/48.

▲ **Thos. L. Hickey Co.,** 712 N. Niles St., South Bend, Ind. CA, **$2,000,000,** BOILER HOUSE, SOUTH BEND, IND. University of Notre Dame, South Bend, Ind. Albert Kahn Assoc. Architects & Engineers, Inc., New Centre Bldg., Detroit, Mich., archt. Awarded May 7. CD 5/23/47, under Commercial Buildings.

▲ **H. E. Swendsen,** 14 Henderson Ave., Joliet, Ill., CA **$7,000,000,** FACTORY addn., JOLIET, ILL. Caterpillar Corp., Route 6 at Des Plaines River, Joliet, Ill. Awarded May 12. CD 1/3.

Sorenson-Gross Constr. Co., Flint, Mich. CA **$791,237.** 2 story, brick, steel, concrete Northern High School, FLINT, MICH. City, Bd. Educ., Flint, Mich. CD 5/9, under LB.

WEST OF MISSISSIPPI

BIDS ASKED—HEAVY CONSTRUCTION

▲† **Okla., Altus**—DORMITORIES, etc.—B.A. 6/30—U. S. Eng., Box 61, Tulsa, Zone 2, 8 three-story 25,000 sq. ft. dormitories, concrete block, hollow tile constr., two 34,000 sq. ft. mess and admin. bldgs., Inv. No. Eng 34-066-52-77. $2,000,000. CD 1/24.

BID ASKED—BUILDINGS

† **Minn., Finland**—WEATHER STATION—B.A. 6/10—U. S. Eng., 1709 Jackson St., Omaha, Neb., masonry bldg. addns., heating and eletcrical alterations weather station.

▲† **Okla., Fort Sill**—ACADEMIC—B.A. 6/15—U. S. Eng., Box 61, Tulsa 2, 2 story, bsmnt., 190,000 sq. ft. concrete block or hollow tile academic bldg., bell bottom piers and grade beams, air-conditioning, Inv. No. Eng 34-066-52-72. $1,500,000. CD 5/15.

▲ **Tex., Waco**—Y.M.C.A. BLDG.—B.A. 6/20—Young Men's Christian Assn., Waco, 5 story, bsmnt., 112,000 sq. ft., brick, stone masonry Y.M.C.A. bldg., rein.-con. fdn. and frame, swimming pool, etc. $1,000,000. Plans deposit $50. Walter Cocke, Jr. & Co., 1501 Franklin St., archts. Frank T. Drought, 117 W. Pecan St., San Antonio, engr. CD 3/14/51.

HEAVY CONSTRUCTION

LOW BIDS AND CONTRACTS

▲ **MISSOURI**—State Hy. Comn., Jefferson City,

Fruin-Colnon Contg. Co., 1706 Olive St., St. Louis, Mo CA, **$1,109,175.** bridge substructure of 3,800 ft. main viaduct of Third St. Inter-Regional Hy. in St. Louis. CD 5/14, under LB.

▲† **J. A. Terteling & Sons, Inc.,** 4011 Fairview Ave., Boise, Idaho, CA, **$1,420,238,** est. $1,909,751, Schedule 5, earthwork, concrete canal lining and structures for Courtland Canal, Station 772 plus 00 to 1503 plus 00, Missouri River Basin Proj., Bostwick Div. Spec. DC-3680, NEBRASKA. Bureau Reclamation, Dpt. Interior, Superior, Neb. Bids Apr. 22, awarded May 9. CD 5/2.

OKLAHOMA—Oklahoma Turnpike Auth., Capitol, Oklahoma City, Zone 5,

Oklahoma Paving Co., 44000 N. Portland Ave., Oklahoma City, Okla., LB, **$312,291,** est. $295,931, Cont. 63, two concrete, steel bridges near Sapulpa, Creek Co.;

Henryetta Constr. Co., Henryetta, Okla., LB, **$295,136,** est. $258,535, concrete, steel overpass on turnpike near Sapulpa, Creek Co.;

Standard Paving Co., 2119 E. 11 St., Tulsa, Okla., LB, **$228,293,** est. $201,693, concrete, steel overpass on turnpike near Sapulpa, Creek Co.;

Gragg Constr. Co., Henryetta, Okla., LB, **$90,547,** est. $73,323, concrete, steel overpass near Sapulpa, Creek Co.; LB, **$80,584,** est. $64,458, concrete, steel overpass on turnpike near Sapulpa, Creek Co. Bids May 13. CD 4/1 and 4/30.

▲ **OKLAHOMA**—Oklahoma Turnpike Auth., Capitol, Oklahoma City, Zone 5,

Amis Constr. Co., 1647 Exchange Ave., Oklahoma City 8, Okla., LB, **$811,264,** est. $529,474, Cont. No. 61B, grading, incidental constr. 1.46 mi. Creek Co.; LB, **$455,982,** est. $350,676, Cont. 61A, grading, incidental constr. 2.107 mi. Creek Co.;

Standard Paving Co., 2119 E. 11 St., Tulsa, Okla., LB, **$257,292,** est. $237,743, Cont. 62, paving, incid. work 2.313 mi. Creek Co. Bids May 13. CD 4/1 and 4/30.

▲† **Atlantic, Gulf & Pacific Co.,** 15 Park Row, New York, N. Y. LB, **$1,576,803,** dredging channel from Corpus Christi to La Quinta, Nueces and San Patricio Counties. Inv. No. CIVENG 41-243-52-80, TEXAS. U. S. Eng., 606 Sante Fe Bldg., Galveston, Tex. Bids May 9.

▲† **Lawless & Alford, Inc.,** Box 600, Austin, Tex., CA. **$2,207,000.** airmen's dormitories, mess and admin. bldgs. for Bergstrom Air Force Base, Inv. No. ENG 41-243-52-75, AUSTIN, TEX. U. S. Eng., 606 Santa Fe Bldg., Galveston, Tex. Bids Apr. 18. CD 4/24, under LB.

▲ **Heldenfels Bros.,** P.O. Box 1917, Corpus Christi, Tex., LB, **$2,224,914,** base bid;

H. B. Zachry Co., Box 2570, San Antonio, Tex., LB, **$2,473,714,** alt. bid, for causeway between Port Isabel and lower end Padre Island, PORT ISABEL, TEX. Cameron Co., c/o Comrs. Court, Court House, Brownsville, Tex. Bids May 12. CD 4/16.

BUILDINGS

LOW BIDS AND CONTRACTS

Ayrshire Corp., P.O. Box 20032, Houston, Tex., CA. **$775,000.** Tex. 20-1, 90 DWELLING units in 31 bldgs., 2 admin. and maintenance bldgs., etc., BRYAN, TEX. Bryan Housing Auth., Bryan, Tex. Wm. E. Nash, Bryan, Tex., and Stone & Pitts, Bryan, Tex., archts. CD 5/9, under LB.

▲ **N. A. Nelson,** Sheridan, Wyo. CA **$1,135,200.** 90-bed HOSPITAL, SHERIDAN, WYO. Sheridan Co., Court House, Sheridan, Wyo. Bids Mar. 17, awarded May 13. CD 3/25, under LB.

† **Claremont Constr. Co.,** Claremont, Calif., LB, **$722,140.** BUILDING facilities, TA-39, Proj. "A." Inv. No. 291-52-48, LOS ALAMOS, N. M. U. S. Atomic Energy Comn., Los Alamos, N. M. Bids May 8.

FAR WEST

HEAVY CONSTRUCTION

LOW BIDS AND CONTRACTS

ARIZONA—State Hy. Dpt., 17 Ave. and Jackson Sts., Phoenix,

Martin Constr. Co., Box 934, Tucson, Ariz., CA **$737,024**, rebuilding and bit. 8 mi. Tucson-Picacho Hy., Pima Co. Bids May 9. CD 4/29.

† **Wick Constr. Co.**, 215 W. 36 St., Seattle, Wash., CA, **$359,966**, 2 frame, dormitories, at Paine Air Force Base, Eng. 45-108-52-153, EVERETT, WASH. U. S. Eng., 4735 E. Marginal Way, Seattle, 4, Wash. Bids Mar. 21. CD 3/26, under LB.

† **Busboom & Rauh**, N. 601 Cedar St., Spokane, Wash. LB **$696,216**, est. $676,208. operations bldg., control tower Fairchild Air Force Base, Inv. 52-24, SPOKANE, WASH. U. S. Eng., City-County Airport, Walla Walla, Wash. Bids May 13. CD 4/25.

▲ **CALIFORNIA**—State Div. Hys., P. Wks. Bldg., Sacramento,

Guy F. Atkinson Co., 10 W. Orange Ave., South San Francisco, Calif., LB, **$2,986,961**, constructing ½ mi. section of Bayshore Freeway Viaduct in San Francisco, San Francisco Co. Bids May 14. CD 4/24.

▲ **CALIFORNIA**—State Div. Hys., P. Wks. Bldg., Sacramento,

A. Teichert & Son, Inc., 1931 Stockton Blvd., Sacramento, Calif. CA **$1,048,738**. constr. 4.3 mi. road between Dunsmuir and Big Canyon, Siskiyou Co. Bids Apr. 30, awarded May 10. CD 5/7, under LB.

▲ **United Concrete Pipe Corp.**, Box 425, Baldwin Park, Calif. CA, **$2,069,130**, Garvey-Ascot Cross Feeder, Alhambra, and Monterey Park, LOS ANGELES, CALIF. Metropolitan Water Dist., 306 W. 3 St., Los Angeles, Calif. Bids May 8. CD 4/15, under LB.

Papac Constr. Co., 604 N. Montebello Blvd., Montebello, Calif., LB, **$128,795**, relief sewer in Orange Dr. between Hollywood Blvd. and Melrose Ave.;

A. R. Milosevich & Son, 303 N. Alma St., Los Angeles, Calif., LB, **$80,298**, sanitary sewer in Culver Blvd. and Ingelwood Blvd. Sewer District;

Edward Green, 3001 Coolidge Ave., Los Angeles, Calif. LB, **$617,050**, Valley Outfall Relief Sewer, Section "A" and Section "B" Kister Ave. to Van Owen St., LOS ANGELES, CALIF. City, City Hall, Los Angeles, Calif. Bids May 7. CD 4/15.

BUILDINGS

LOW BIDS AND CONTRACTS

Vaux Bros. Contg. Co., Kirkland, Wash., Day Labor, **$400,000**, 10 APARTMENTS, KIRKLAND, WASH. CD 5/7.

Lease & Leigland, 1501 N. 35 St., Seattle 3, Wash. LB **$777,750**. general contract 3 story, 43x271 ft., rein.-con. CELL BLOCK addn. at State Reformatory, MONROE, WASH. State Dpt. P. Institutions, Olympia, Wash. Bids May 14. CD 4/17.

▲ **Vieska & Post**, Box 60, Salem, Ore. LB **$1,916,786**. 4 story COURT HOUSE, SALEM, ORE. Marion Co., Court House, Salem, Ore. Bids May 15. CD 4/30.

▲† **Stolte, Inc.**, 8451 San Leandro St., Oakland, Calif. and **Morrison-Knudsen Co., Inc.**, 4112 W. 5 St., Los Angeles, Calif. CA **$3,633,855**. 23 two story wood frame BARRACKS and 4 MESSHALLS, near Marysville, CAMP BEALE, CALIF. U. S. Eng., Wright Bldg., Sacramento, Calif. CD 4/28, under LB.

Gordon Fields, 1554 Stoddard St., San Bernardino, Calif. CA, **$554,269**, Perris Hill High SCHOOL, SAN BERNARDINO, CALIF. San Bernardino High School District, 799 "F" St., San Bernardino, Calif. Bids May 1, awarded May 8.

CANADA

SOON LETS CONTRACT—BUILDINGS

▲ **B. C., Vancouver**—PLANT—McCarter & Nairne, archts., 1903 Marine Bldg., soon let contract 1 story, 150x360 ft., steel, concrete plant addn., Grandview Hy. near Renfrew St., for British Ropes Canada Factory Ltd., Grandview Hy. Approx. $1,500,000.

HEAVY CONSTRUCTION

LOW BIDS AND CONTRACTS

▲ **P. W. Graham & Sons Ltd.**, Willard Bldg., Moose Jaw, Sask., CA, **$1,452,611**, Barrack block;

Lackerbie & Hole Ltd., Edmonton, Alta., CA, **$505,783** steam distr. system and alterations to heating plant at R.C.A.F. Station in this area, EDMONTON, ALTA. Defence Constr. Ltd., 400 Kensington Bldg., Winnipeg, Man. CD 3/3/48.

▲ **Dawson Wade & Co.**, 775 Clark Dr., Vancouver, B. C., and **B. C. Bridge & Dredging Co. Ltd.**, 544 Howe St., Vancouver, B. C. CA **$5,570,615**. concrete approaches and connections for high level bridge over False Creek and Granville Island, VANCOUVER, B. C. City, City Hall, R. Thompson, clk., Vancouver, B. C. Bids May 5, awarded May 13. CD 5/12, under LB.

M. Sullivan & Son Ltd., 445 Montreal St., Kingston, Ont., CA, **$350,000**, steam distr. sys. at R.C.E.M.E. area, Army Camp, Job. 1926, BARRIEFIELD, ONT. Defence Constr. Ltd., 441 Queen's Quay W., Toronto, 2B, Ont.

R. Timmons Constr. & Eng. Co. Ltd., 221 Burger St., Welland, Ont., CA, **$568,191**, two officers mess bldg. at Air Station, CLINTON, ONT. Govt. of Canada Dpt. National Defence, AIR, Cartier Sq., Ottawa, Ont. CD 12/28/51.

BUILDINGS

LOW BIDS AND CONTRACTS

Collet Brothers Ltd., Parent St., Ottawa, Ont., CA, $900,000, 5 story, 235x57 ft. with attached 62x68 ft. wing, 86 ft. high, rein.-con. stone face, concrete MEDICAL BLDG., Nicholas St. between McDougal and Somerset Sts., OTTAWA, ONT. University of Ottawa, Laurier Ave. E. Ottawa, Ont. J. S. Lefort, 86 Greenfield St., Ottawa, Ont., archts. CD 2/13/46.

▲ **Newman Bros. Ltd.**, 127 St. Paul St., St. Catherines, Ont. CA, **$1,250,000** 1 story, 235x540 ft. steel, brick PLANT, ST. CATHERINES, ONT. Thompson Products Ltd., 37 Louth St., St. Catherines, Ont. Awarded May 12. CD 4/18.

▲ **Provincial Engineering Ltd.**, 1500 St. Catherine St. W., Montreal, Que., CA, Approx. **$1,500,000**, sulphuric acid PLANT, ARVIDA, QUE. Aluminum Co. of Canada Ltd., Arvida, Que.

R. E. Stewart Constr. Corp., 268 Wellington St. S., Sherbrooke, Que., CA, Approx. **$500,000**, iron pyrites burning PLANT at pulp and paper mill, DONNACONA, QUE. Donnacona Pulp & Paper Co. Ltd., 25 St. Louis St., Quebec City, Que. J. E. Morrisette, c/o owner, engr. CD 7/27/50.

David Bloom, Inc., 3365 Ridgewood Ave., Montreal, Que., CA, $750,000, 11 story, bsmnt., rein.-con. 100-suite Amesbrooke APARTMENTS, Dorchester St., W., MONTREAL, QUE. Amesbrooke Realties, Corp., 3365 Ridgewood Ave., Montreal, Que. Bids Apr. 15. CD 4/8.

▲ **Cap Construction Ltee**, Cap de la Madeleine, Que., CA, Approx. $1,000,000, 100-unit Housing near Richelieu River, ST. JOSEPH DE SOREL, QUE. Massicotte & Fils Ltee., St. Joseph de Sorel, Que.

Proposed Projects———

WATER SUPPLY

Ky., Elkhorn City—City, complete water sys., filter plant, storage tanks, **$200,000**, Maurice Miller, McDowell Bldg., Louisville, consult. engr. CD 3/3.

O., Westerville—Village, enlargement and partial rebuilding of water plant, new 10 in. line from plant to storage tank, sewage disposal plant. **$650,000.** Burgess & Niple, 584 E. Broad St., Columbus, consult. engrs. CD 4/8.

▲ **R. I., North Kingston**—Town, Water Dpt., Town Hall, water sys. **$1,000,000.** Jenks & Ballou, 2600 Industrial Trust Bldg., Providence, consult. engrs. CD 7/22/47.

S. C., Charleston—Comr. P. Wks., 14 George St., WW exten. **$800,000.** Francis B. McDowell, Jr., c/o owner, engr. CD 11/24/50.

▲ **Tex., Eastland**—City, voted bonds May 2, dam, **$1,000,000**; water mains, lines, **$320,000**; water filtration plant, **$100,000**; water pumping plant, **$80,000.** CD 11/8.

Tex., Lubbock—City, water distr. lines and reservoir for citizens of south and southwest Lubbock for storage and a line leading from reservoir into residential and common areas, **$185,000**; water reservoir and booster station, 34 St. and Slide Rd., **$227,000**; 9 water supply wells and lines; water pumping station and lift station imprvs., in Northwest Transmission Line Area, **$75,000.** W. B. Holmes, c/o owner, city engr. CD 12/20/49.

Tex., Pittsburg—City, one 250,000 gal. steel elevated storage tank, one m.g. rein.-con. ground water storage tank, **$200,000**; new water lines, Quitman St. to serve new area, **$80,000.**

SEWERS, WASTE DISPOSAL

Calif., Marysville—City, City Hall, **$250,000** bond election June 3, sanitary sewer addns., pipe lines, etc.

Ill., Milan—City, sewage treatment works, sanitary sewers, **$300,000.** Missman, Stanley, Farmer & Assoc., 319 24 St., Rock Island, consult. engrs. CD 12/20/46.

▲ **Ind., Indianapolis**—Bd. P. Wks., City Hall, Zone 4, main sewer, 37 and 38 Sts., sewer, Linwood St. to Fall Creek, **$1,200,000.** W. R. Hunt, City Hall, Zone 4, city engr. CD 7/22/43.

Mass., Bedford—Town, Bd. Selectmen, Town Hall, sewers, force mains, gravity mains, pump, **$250,000.** Thos. Worcester, Inc., 84 State St., Boston consult. engr.

Mont., Billings—City, 24 in. interceptor sewer along Fourth Ave. north from 23 to 32 Sts.; 32 St. from Fourth Ave. north to Sixth Ave. north, **$200,000**, John McGhee, city engr.

S. C., Barnwell—Town, sewer and sewerage treatment facilities. **$455,000.**

BRIDGES

▲ **Ill., Chicago**—City, City Hall, Van Buren St. Bridge over South Branch Chicago River, replacing present structure. **$1,200,000.**

Ind., Anderson—Madison Co., concrete, steel bridge over White River east of here, **$200,000.** Pierce & Gruber, Hume Mansur Bldg., Indianapolis, consult engrs.

MASSACHUSETTS—Commonwealth of Mass., Metropolitan Dist. Comn., Parks Div., 20 Somerset St., plans by Coolidge, Shepley, Bulfinch & Abbott, 1 Court St., Boston, permanent pedestrian overpass Embankment Rd. and Otter St., Boston, **$200,000**, Arthur A. and Sidney N. Shurcliff, 14 Beacon St., Boston, landscape archts. Brask Eng. Co., 177 State St., Boston, engr.

O., Toledo—Comrs. Lucas Co., Court House, four-lane overpass on Byrne Rd. at New York Central R. R. crossing, **$700,000-$1,000,000.** Sanzenbacher, Morris & Taylor, Erie Bldg., consult. engrs. CD 11/18/43.

Tex., Sherman—City, bond election July 1, bridge const. **$108,200**; underpass, **$545,241.** CD 5/9.

STREETS AND ROADS

Minn., Minneapolis—City, H. Erickson, engr., 64,026 sq. ft. new sidewalks, 127,076 lin. ft. conc. curb and gutter, **$375,000**, C. Bodien, asst. city engr. CD 2/1.

Minn., Minneapolis—City, H. Erickson, engr., pave Grand Ave. between 34 and 48 Sts. **$235,470**, G. Bodien, asst. city engr.

▲ **OKLAHOMA**—State Hy. Dpt., Capitol, Oklahoma City, Zone 5,

Oklahoma Co.—3.5 mi. four-lane highway from Witcher to Bradbury Corner, **$1,302,500.**

four lane highway on U. S. 66 from Oklahoma City to Bethany, **$5,200,000.** G. H. Bittle, c/o owner, engr.

EARTHWORK, WATERWAYS

▲† **Alaska, Ketchikan**—Bureau Reclamation, Dpt. Interior, Bldg. 53, Denver Federal Center, Denver, Colo., hydro-electric dam at Swan Lake, near here, **$13,562,000.**

AIRPORTS

Calif., Los Angeles—TERMINAL BLDG.—Los Angeles Dpt. Airports, 5800 Avion Dr., plans by Periera & Luckmar, 7421 Beverly Blvd., permanent terminal bldg. for Los Angeles International Airport, **$300,000.** CD 5/16/45.

▲ **Calif., Palmdale**—HANGAR, etc.—Northrop Aircraft Inc., 1001 Broadway, Hawthorne, hangar, auxiliary bldg. and paving Palmdale Airport, **$3,500,000.** Holmes & Narver Engineers, 824 S. Figueroa St., Los Angeles, consult engrs.

† **Kan., Kansas City**—RUNWAYS—U. S. Eng., 601 Davidson Bldg., Kansas City 3, Mo., lengthen runways Fairfax Airport for testing military aircraft adjacent to General Motors Corp. **$500,000.** Air Material Command, Wright-Patterson Air Force Base, Springfield Pike, Dayton, O., consult. engr.

Miss., Columbia—AIRPORT—City, expansion airport acquisition of 160 acres, **$276,000.** CD 1/5/45.

† **Pa., Willow Grove**—MAINTENANCE and SHOP—Dpt. Navy, Phila. Naval Base, Phila., plans by The Ballinger Co., 121 N. Broad St., Phila., aircraft maintenance and shop bldg., Naval Air Station. **$700,000.** CD 3/31.

▲ **O., Toledo**—AIRPORT—City, City Hall, airport, Bancroft St. near McCord Rd. **$1,700,000.** Leigh, Fischer & Assoc., South Bend, Ind., and Stepleton, McDonnell & Barber, Spitzer Bldg., for financial and eng. survey. CD 10/8.

Tex., Lubbock—RUNWAYS, etc.—City, City Hall, runways, taxiways, **$200,000.** W. B. Holmes, c/o owner, city engr.

▲ **Newfoundland, Gander**—HOUSING—Dpt. National Defence AIR, Cartier Sq., Ottawa, Ont., housing development at airport, **$2,000,000.** Central Mortgage & Housing Corp., 70 Lyon St., Ottawa, Ont., engr. CD 12/19/49.

LATIN AMERICA

▲ **Colombia, Tolina**—Texas Petroleum Co., Tolima, plans 1,000 bbl. topping plant in Upper Magdalena Valley or its Tetuan Property. **$1,500,000.**

Mexico, Mexico City—Juan Sordo Madaleno, Insurgentes, 124, Mexico City, plans 4,000-seat cinema. **$500,000.**

▲ **Mexico, Mexico City**—Mexican Red Cross, Mario Valles, dir., Mexico City, plans hospital. **$1,200,000.**

PUBLIC BUILDINGS

Calif., Campbell—SCHOOLS—Campbell Unified School Dist, Campbell, **$600,000** bond election June 10, addnl. classrooms.

Calif., Cantua—SCHOOL—Cantua Elementary School Dist., P.O. Box 198, plans by Wm. Hastrup, Anglo Bank Bldg., Fresno, elementary school. **$500,000.** CD 10/12/51.

Calif., Los Angeles—LIBRARY and OFFICE—Los Angeles Co., Medical Assn., 1924 Wilshire Blvd., plans by Periera & Luckman, 7421 Beverly Blvd., 2 and part 3 story, rein.-con., 36,000 sq. ft. library and office. **$500,000.**

Calif., San Francisco—SCHOOL—Dpt. P. Wks., City Hall, plans by Cantin, Cantin & Page, 704 Market St., Douglas Elementary School, 19 and Collingswood Sts. **$600,000.** CD 11/17/48.

▲ **Calif., San Lorenzo**—SCHOOL—Hayward Union High School Dist., 22300 Foothill Blvd., Hayward, plans by Anderson & Simonds, 2800 Park Blvd., Oakland, high school. **$3,500,000.** CD 4/11.

▲ **Calif., Stockton**—COURT HOUSE and Jail—San Joaquin Co., Court House, bond election Nov. 4, court house, **$3,500,000**; jail, **$500,000.** CD 11/29/48.

(Continued on page 102)

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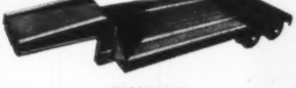

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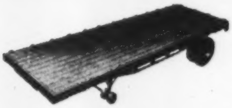

PLATFORMS

TANDEM DUMPS

(Continued from page 100)

Conn., Windsor Locks—SCHOOL—Town, Bd. Educ., 50 Church St., plans by Ernest Sibley & Ernest Sibley Jr., 7 S. Main St., West Hartford, high school. **$500,000.**

Del., Georgetown — SCHOOL, etc. — Georgetown Del. Special School Dist., plans by Stanhope & Manning, 902 Orange St., Wilmington, school addn. and boiler plant alterations and electric distr. system **$792,792.** CD 3/26/51.

▲ **D. C., Wash.**—SCHOOLS—Bd. of Educ., 13 and K Sts. N.W., Van Ness Elementary School, vicinity of 7 and L Sts. S.E., **$1,410,000;** administration bldg., 13 St., Upshur and Allison Sts. N.W., **$2,125,000;** Douglass Junior High School addn., 2427 Nichols Ave. S.E., **$300,000;** Armstrong High School, Brentwood Tract in vicinity of 6 St. and Florida Ave. N.E., **$5,000,000;** Syphax Elementary School addn., Half St. between N and O Sts. S.W., **$370,000;** Junior High School, vicinity of 42 and Grant Sts. N.E., **$2,500,000;** elementary school, vicinity of 56 St. and E. Capitol Sts. **$1,060,000.**

D. C., Wash.—SCHOOL—District Public Schools, 13 and K Sts. N. W., Wash., D. C., elementary school 9 and Barnaby St. S. E., **$800,000.**

▲ **Ill., Chicago**—HOUSING—Chicago Housing Auth., 608 S. Dearborn St., 1921 apartments, housing expansion, Frances Cabrini Homes, Larrabee and Orleans Sts. and Chicago Ave., **$15,000,000;** housing project incl. 1,718 apartments, Western and Madison Ave., **$13,500,000.** CD 2/2/50.

Ill., Skokie—SCHOOL—Niles Twp. High School, Skokie, plans by Thos. J. Higgins & Assoc., 228 N. La Salle St., Chicago, Zone 1, high school addns., 2 woodworking units, music, graphic arts units, industrial arts bldg. **$600,000.**

▲ **Ill., Wheaton**—SCHOOL—School Dist. 36, 504 Naperville St., plans by Robt. H. Salisbury, 213 W. Wesley St., Junior High School. **$1,100,000.**

Kan., Liberal—SCHOOL—School Dost. 2, c/o N. B. Mahuron, clk., voted **$600,000** bonds Apr. 1, schools. Mann & Co., 201 E. First St., Hutchinson, archts. CD 3/4.

▲ **Me., Bangor**—AUDITORIUM—Bangor Recreation Center, R. M. Haskell, chn., Bangor, plans by Eaton W. Tarbell & Assoc., 84 Harlow St., municipal auditorium, **$1,200,000.**

▲ **Mass., Auburn**—SCHOOL—Town, Supt. Schools, Tuttle Sq., plans by Franklyn R. Williams, 20 Elm St., Worcester, high school addn. **$1,000,000.**

▲ **Mass., Boston**—HOSPITAL—State, Dpt. Mental Health, 15 Ashburton Pl, plans by Allied Engineering Corp., 71 Proctor St., Roxbury, 5 story, bsmnt., 36x150 ft., brick, rein.-con. Boston Psychopathic Hospital addn., alterations, **$1,000,000.**

Mass., Longmeadow—SCHOOL—Town, School Dpt., Howard G. Herrschaft, supt., 811 Longmeadow St., high school, Bliss Rd., William St. and Grassy Gutter Rd. **$800,000.**

Mass., Marblehead—SCHOOL—Town, Aura W. Coleman, supt. Schools, Town Hall, plans by Kilham, Hopkins, Greeley & Brodie, 9 Arlington St., Boston, Junior High School, **$750,000.** CD 1/30.

Mich., Benton Harbor—SCHOOL—City, Bd. Educ., plans by Warren S. Holmes Co., 2200 Olds Tower, Lansing, 2 story, bsmnt., brick, steel high school. **$900,000.** CD 11/26/51.

Minn., Litchfield—SCHOOL—Bd. Educ., Independent School Dist. 9, A. Klein, clk., voted $700,000 bonds May 6, grade school, grade school addn., **$500,000,** E. D. Corwin, E. 818 First National Bank Bldg., St. Paul, archt. CD 1/3.

Minn., St. Paul—RECREATION CENTER—University of Minnesota, 323 Admin. Bldg., Main Campus, Minneapolis, 1 story student recreation center, St. Paul Campus. **$500,000.**

▲ **Mont., Missoula**—SCHOOLS—Missoula County School Dist. 1, Missoula, voted **$1,393,000** bonds, 3 school addns. CD 2/13.

▲ **Neb., Lincoln**—AUDITORIUM—City, City Hall, $750,000 bond election June 17, municipal auditorium. **$3,250,000.** Extended date. CD 5/12.

▲ **Neb., McCook**—SCHOOL—Bd. Educ., **$1,325,000** bond election June 10, high school. CD 4/13/48.

▲† **O., Cleveland**—HOSPITAL—Veterans Admin., Vermont Ave. between H and I Sts. N.W., Wash. 25, D. C., 500-bed hospital. **$11,000,000.** CD 12/7/49.

▲ **O., Cleveland Heights**—SCHOOL—Bd. Educ., 1749 Lee Rd., plans by Spahn & Barnes, 1950 Lee Rd., Frank W. Wiley Junior High School, Warrensville Center and Cedar Rds. in University Heights. **$1,000,000** (1st unit plus $600,000 later). CD 11/21/49.

▲ **O., Fairview Park**—SCHOOL—Bd. Educ., Fairview Park, voted bonds, high school and 2 elementary schools expansion **$1,000,000.** CD 4/30.

O., Lakewood—SCHOOLS—Bd. Educ., Lakewood, voted bonds, construction and imprv. of bldgs. and incl. 2,000-seat auditorium at Lakewood High School. **$650,000.**

▲ **O., Parma**—SCHOOL—Bd. Educ., Parma, voted bonds, 10-classroom elementary school, Renwood Dr., 10-room Parma-Schaaf High School addn., and Ridge Road Junior High School addn. **$1,000,000.** CD 5/5.

▲ **Pa., Phila.**—SCHOOL—Bd. Educ., 21 and Winter Sts., plans by Carroll, Grisdale & Van Alen, 204 W. Rittenhouse Square, Arnold School, 22nd and Dauphin Sts. **$1,300,000.** CD 2/8/45.

▲ **Tex., Corpus Christi**—SCHOOLS—Corpus Christi Independent School Dist., 515 N. Carancahua St., intermediate school near U. S. Naval Station, **$425,000;** Ebony Acres Elementary School addn., **$375,000;** Senior High School unit, **$750,000;** new Junior School unit, **$650,000;** Driscoll Junior School, **$400,000;** Wynn Seale School addn., **$350,000.** CD 5/3/51.

▲ **Tex. McAllen**—HOSPITAL—City, City Hall, plans by Ford & Rogers, 228 E. Martin St., San Antonio and Richard Colley, 310 S. Tancahua St., Corpus Christi, hospital. **$1,000,000.** CD 10/11/50.

▲ **Tex., San Antonio**—BULK SUB-STATION—City Public Service Bd., 201 N. St. Marys St., bulk sub-station to transmit power from generating sources to consumer outlets, **$500,000;** bulk sub-station to transmit power from generator sources to consumer outlets on north side, Bandera Rd.-McCullough Ave. sectors, **$500,000.**

▲ **Alaska, Anchorage**—HIGH SCHOOL—City, City Hall, plans by Manley & Mayer, Anchorage, high school. **$2,465,000.** CD 5/11/51.

▲ **Phillipine Islands**—POWER PLANT—National Power Corp. of Manila, Natnidad Bldg., Manila, Job. No. 4, power plant; Job 3, turbines and generator; Job. 2, dam and spillway, at Ambuclao Total **$50,000,000.** Harza Eng. Co., 400 W. Madison St., Chicago 6, Ill., engr. CD 12/13/45.

▲ **Ont., Toronto**—SCHOOL—Bd. Educ., 155 College St., expansion of Lawrence Park Collegiate School, **$1,000,000.** CD 2/5/47.

Ont., Toronto—MUNICIPAL—City, A. A. Lamport, mayor, City Hall, municipal bldg., to replace present police and fire stations to incl. health centre and welfare units. **$900,000.** CD. 8/30/45.

COMMERCIAL BUILDINGS

Ala., Auburn—CHURCH—Auburn Methodist Church, Auburn, plans by Geo. C. Blau, Bona Allen Bldg., Atlanta, church, **$500,000.**

Calif., Berkeley—HOSPITAL—Herrick Memorial Hospital, 2001 Dwight Way, plans by Jas. F. McGuiness, 488 Pine St., San Francisco, wing addn. to Herrick Memorial Hospital, **$500,000.** CD 2/10/50.

▲ **Calif., Eureka**—HOUSING, etc.—Ernest Pierson, 4100 Broadway, Eureka, 400 home subdivision, shopping center, etc., at Freshwater, near here. **$4,000,000.**

▲ **Calif., Sunnyvale**—SHOPPING CENTER—Wm. S. Romano & Edwin W. Randle, Atherton, shopping center, **$2,000,000.**

Del., Brandywine Hundred—CHURCH, etc.—Wilmington Roman Catholic Diocese, 414 W. 28 St. Wilmington, church, school **$500,000.**

Ill., Chicago—NURSES HOME—Illinois Masonic Hospital, 834 W. Wellington St., plans by Schmidt Garden & Erikson, 104 S. Michigan Ave., Zone 3, 7 story, brick, rein.con. framing nurses home, chapel, auditorium, and private apartments, **$750,000.**

Ill., Chicago—BLOOD SERUM CENTER—Michael Reese Hospital, 29 and Ellis Ave., plans by A. Epstein & Sons Co., 2011 Pershing Rd., Zone 9, 1 story with 2 story, bsmnt. sections 50,000 sq. ft. blood serum center, **$1,250,000.**

▲ **Mass., Boston**—MEDICAL CENTER—Boston University, School of Medicine & Massachusetts Memorial Hospital, 750 Harrison Ave., Boston, University Medical Center, incl. medical school addn., nurses home, hospital-medical associates bldg., south end, East Concord, Stoughton, Harrison Aves., Albany and East Newton Sts. **$1,000,000.**

▲ **Mass., Holyoke**—ORPHANAGE—R. C. Diocese, Springfield, Most Rev. Christopher Weldon, bishop, Chancery Office, 62 Eliot St., Springfield, plans by Eggers & Higgins, 100 E. 42 St., New York, N. Y., orphanage expansion, Brightside Institution, **$1,000,000.**

▲ **Mich., Detroit**—HOSPITAL—Herman Kiefer Hospital, Bd. Trustees, Taylor and Hamilton Sts., plans by H. E. Beyster & Assoc., Inc., 2000 Industrial Bank Bldg., 4 story, brick, steel, concrete, T-shaped hospital addn. **$2,000,000.** CD 4/24/51.

▲ **N. J., Mercerville**—SHOPPING CENTER, etc.—New Era Acceptance Corp., Mercerville, plans by John W. Toth, 36 W. Lafayette St., Trenton, shopping center, post office and parking area **$1,000,000.**

O., Parma—APARTMENT—Snow Village, Inc., 348 Engineers Bldg., Cleveland, plans by Johnson & Ratner, Oberlin, 10 apartments, on 10 acre site at Snow and Stumpf Rds. **$912,000.**

Okla., Tulsa—HOUSING—C. R. Hansen, 3848 S. Madison St., housing development, 24 and Sheridan Sts., **$700,000,** Mansur & Steele, 1642 S. Boston St., consult. engrs.

▲ **Okla., Tulsa**—OFFICE—Sinclair Oil Co., Sinclair Bldg., office. **$2,000,000.** P. C. Spencer, c/o owner, engr.

▲ **Tex., Dallas**—SHOPPING CENTER, etc.—J. P. Travis, 6710 Denton Dr., shopping center, **$350,000;** 20 frame dwellings, **$300,000;** 22 masonry dwellings, concrete slab fdn., air-conditioning, **$400,000;** 25 frame, brick stone dwellings, concrete slab fdn., **$375,000;** 30 one and two story masonry, some ranch dwellings, **$600,000,** in an area of Mediterranean Gardens.

▲ **Tex., Fort Worth**—HOSPITAL—Harris Hospital, 1300 W. Cannon St., revised plans by W. G. Clarkson, 819 Penn St., 10th floor addn., new 4 story bsmnt. addn., and 2 story addn. on East and West Wings of Hospital, masonry constr. **$3,965,000.** CD 4/24.

Tex., Houston—APARTMENT—Banks Realty Assoc., Merchants Exch. Bldg., negro apartment, **$750,000.**

▲ **Tex., Longview**—DWELLINGS—Ray Hubbard & Assoc., 1507 Delano St., Dallas, Proj. 1, 50 frame-type dwellings, **$360,000;** Proj. 2, 75 frame dwellings, **$525,000;** Proj. 3, 62 frame, cedar shake dwellings, **$435,000;** Proj. 4, 40 dwellings, misc. types, **$300,000;** Proj. 5, 45 dwellings, **$330,000.**

Tex., Pasadena—DWELLINGS—Gerald S. Gordon & Assoc., Stewart Bldg., Houston, 50 frame dwellings, concrete slab fdn. **$375,000;** 75 frame, masonry dwellings, **$525,000;** all foregoing in new tract just off Center St.

Ont., Toronto—ADMINISTRATION—Bd. Governors St. Michael's College, 50 St. Joseph St., plans by Ernest Cromier, 675 Cote des Neiges Rd., Montreal, Que., administration, St. Joseph St. **$750,000.**

Que., Montreal—HOUSING—E. Godard, 1455 Drummond St., plans by Greenspoon, Freedland, & Dunne, 4151 Sherbrooke St. W., 50-suite apartment, Bonavista Ave. near Cote St. Luc Rd. Approx. **$500,000.**

INDUSTRIAL BUILDINGS

Calif., Bakersfield — WAREHOUSES — California Cotton Cooperative, 1601 E. Brundage Lane, 12 cotton warehouses, 9 at Coicot Plant, 3 at Pinedale Plant, **$750,000.**

▲ **Calif., Oakland**—PLANT—General Metals Corp., 701 105 Ave., steel casting plant at 701 105 Ave. **$1,000,000.**

▲ **Ill., Plainfield**—FACTORY—Hazel-Atlas Glass Co., 15 and Jacob Sts., Wheeling, W. Va., glass factory on 75 acre site. **$4,000,000.**

▲ **Ind., Greencastle**—FACTORY—International Business Machines Corp., 500 Madison Ave., New York 22, N. Y. factory on 58-acre site east of city limits. **$3,500,000.**

▲ **Neb., LaPlatte**—PLANT—Allied Chemical & Dye Corp., 61 Broadway, New York, N. Y., fertilizer plant. **$25,000,000.**

▲ **N. M., Albuquerque**—REFINERY—Malco Refineries, Inc., Roswell, refinery, **$2,000,000.**

▲ **N. Y., Poughkeepsie**—LABORATORY—International Business Machines Corp., 590 Madison Ave., New York, Zone 22, plans by Voornees, Walker, Foley & Smith, 101 Park Ave., New York, Zone 17, research laboratory.

Pa., Phila.—SERVICE—Strawbridge & Clothier, 8 and Market Sts., service bldg. **$500,000.**

▲ **Tenn., Knoxville**—PLANT—Electro Manganese Corp., Proctor St. N.W., plant addns. **$2,500,000.** Patchen & Zimmerman, Danield Field, Augusta, Ga., consult. engrs. CD 4/10.

▲ **Tex., Angleton**—PLANT—Southern Producing Co., Inc., 1612 Fairfield St., Shreveport, La. and Humble Oil Refining Co., Humble Bldg., Houston, Tex., 150,000,000 cu. ft. daily capacity gasoline production plant, Pledger Field in Brazoria Co. **$3,250,000.**

▲ **Tex., Beaumont**—POWER PLANT—Gulf States Utilities Co., 362 Liberty St., power plant, facilities, **$8,500,000.**

▲ **Tex., Beaumont** — REFINERY — Magnolia Petroleum Co., South Beaumont, octane gasoline productive refinery expansion, **$7,820,800.**

▲ **Tex., Colorado City**—POWER PLANT—Texas Electric Service Co., Grand Prairie, electric power plant, some lines, near here. **$7,500,000.** CD 10/2/50.

▲ **Tex., Corpus Christi**—REFINERY—Magnolia Petroleum Co., 1009 Fannin St., Houston, high octane gasoline refinery production unit, **$2,495,200;** some products line terminal imprvs., **$732,000.**

▲ **Tex., Elkton**—POWER PLANT—Texas Power & Light Co., Interurban Bldg., Dallas, power plant, facilities, **$3,912,000.**

▲ **Tex., Houston**—PLANT—Cactus Chemical Co., c/o E. H. Surh, 2nd Natl. Bank Bldg., plans by John W. Folsom, 2431 Robinhood St., chemical plant. **$1,000,000.** CD 4/30.

▲ **Tex., Mount Pleasant**—PLANT—American Liberty Oil Co., Mt. Pleasant, gasoline production plant. **$2,440,000.**

▲ **Wash., Seattle**—GARAGE—Seattle Transit Sytem Airport Way and Atlantic St., plans by Harmon, Pray & Detrich, Lloyd Bldg., Seattle, Zone 1, garage to replace Jefferson St. Terminal. **$1,000,000.** CD 11/27.

▲ **Wis., Green Bay**—WAREHOUSE—Red Owl Stores, Inc., 215 Excelsior Ave., Hopkins, Minn., plans by Lang & Raugland, 802 Wesley Temple Bldg., Minneapolis, Minn., 1 story, part bsmnt., concrete blocks warehouse, **$2,500,000-$3,000,000.**

UNCLASSIFIED

Michigan—TRACK—Duluth, South Shore & Atlantic R. R. Co., S. P. Berg, ch. engr., Marquette, 14 mi. spur track from Bergland to White Pine, **$642,000.**

▲ **Missouri**—RURAL DISTRIBUTION LINES—Black River Electric Co-operative, Ironton, 697 mi. rural distr. lines, 9 mi. transmission lines, sys. imprvs. **$1,825,000.** Frank Horton & Co., Lamar, consult. engrs. James M. Stephenson, owner's engr. CD 2/8/51.

▲ **Mo., St. Louis**—RELOCATING CONNECTING LINE—Missouri Pacific R. R. Co., W. H. Hobbs, ch. engr., 1218 Olive St., Zone 3, relocating connecting line from 12 St. yard and Lesperance Yard, incl. constr. 4,609 lin. ft. new trackage, etc. **$1,240,000.**

▲ **N. J., Hoboken**—PIERS, etc.—Port of New York Auth., 111 Eighth Ave., New York 11, N. Y., rehabilitation piers and shorefront facilities between First and Fourth Sts., incl. 3 new super-piers 650 ft. long, 345 ft. wide, **$22,000,000.** CD 2/23/49.

▲ **Oregon** — RURAL DISTRIBUTION LINES — Benton-Lincoln Electric Co-operative, Corvallis, 71 mi. rural distr. lines, headquarters facilities, sys. imprvs., completion of previously approved constr., Lincoln Co. **$1,550,000.** CD 6/10/49.

▲ **B. C., New Westminster**—PORT EXPANSION—Dpt. Transport, Hunter Bldg., Ottawa, Ont., port expansion and new docks. **$1,250,000.**

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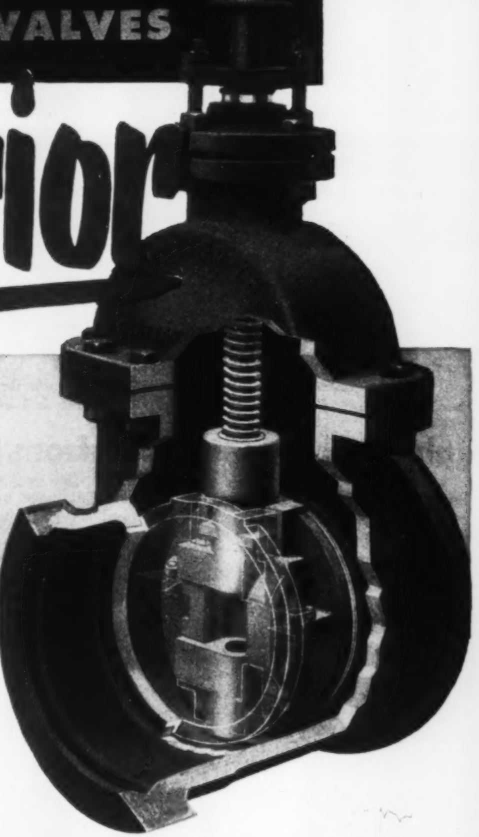
***UNIT GATE ASSEMBLY:* Gates can't fall apart. Heavy lugs and bronze pins hold unit together. (Gates shown in open position to illustrate construction of wedging mechanism.)**



- LEAKPROOF: Precision-machined sealing parts; rigid, permanent, leak-proof design and manufacture.
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- EASILY OPERATED: No stem binding . . . ball joint between bronze gland and follower prevents angular strain on the stem.
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- DISCS PROTECT SEATS: Discs automatically retract before rising . . . won't scratch precision machined valve seats.
- PERMANENTLY ALIGNED DISCS: Discs can't spring out of shape. Wedging pressure applied at outer edges for perfect seal.
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MUELLER CO. manufactures a wide variety of equipment especially designed for the Water Works Industry. This includes a full line of distribution equipment and specialties. Nearly a century of experience has proved that you can depend on any product that bears the Mueller name. Contact your Mueller representative, or write direct.

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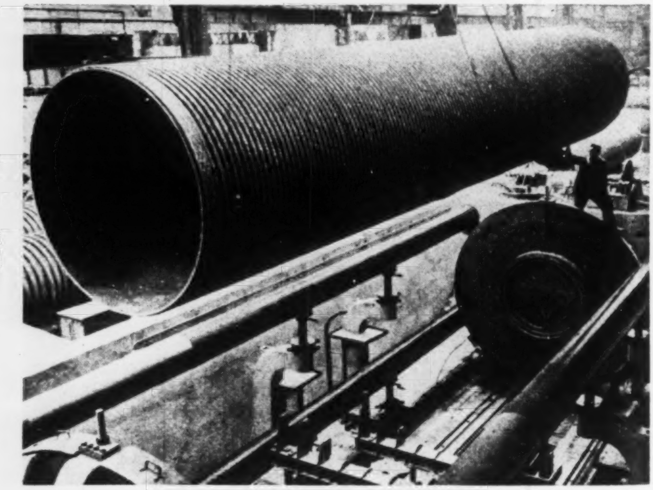


A penstock is lowered into place between face plates of a hydraulic press to be hooped by cold expansion of the shell and to be tested at double the maximum working pressure. Press power is 7,000 tons, and maximum diameter is 3 metres.

High capacity penstocks from France

A French firm is making high capacity penstocks now available for import to the U.S. Plate thickness for a 7½-ft dia penstock under a 2,500-ft head vary from 7/16 to 11/16 in. These penstocks are able to take the extremely high heads by virtue of special hooping consisting of steel cables in the higher stressed portions. Hoops are first slipped on and properly spaced, then the whole assembly is subjected to hydraulic pressure until the pipe shell expands to stretch the hoops tight, passing its elastic limit and acquiring a permanent deformation. By using high steel cables and rolled steel hoops steel savings up to 85% can be realized, according to their American representatives, Peters & Thompson, Civil Engrs., 460 Avenue Del Ora, Redwood City, California.

Plastic piping can carry pharmaceuticals

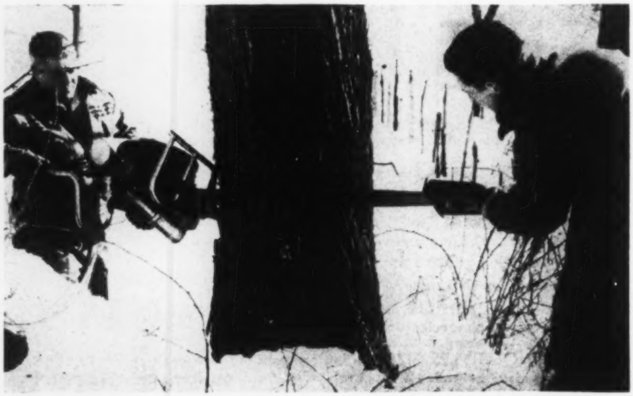
This tough, semiflexible piping, highly resistant to a wide variety of solvents and unaffected by mineral acids, salts and alkalies at temperatures up to 150F, is entirely safe for the transportation of pharmaceutical products and will not react with any food or beverage. Because it is highly resistant to chemicals it is also excellent for sewage and acid drainage use, for fume piping and for corrosives. Its fine electrical properties fit it for use as a conduit.

Known as Cyclothene, it's furnished in stock lengths of 25 ft in 4-in. or larger pipe, 150 ft coils for 3-in. pipe, 250 ft coils for 2-in. pipe and up to 400 ft in smaller sizes, its semi-flexible construction permits it to follow surface contours. A hack saw and screw driver are said to be the only tools used for installation.

The plastic piping is readily connected with knurled and insert connectors clamped with stainless steel bands. A standard pipe thread adapter is also available where connection to other equipment is desired. Cyclothene can be furnished with welded-on flanges in specific lengths and ells, tees and Ys can be fabricated as needed. Munray Products, Inc., 12400 Crossburn Avenue, Cleveland 11, Ohio.

One-man and two-man portable chain saws

This 5 hp two-man chain saw has just eaten into the half-way mark for a first cut and follows with a downward angle cut to help guide the direction of fall. It's the new lightweight Reed-Prentice No. 50 that's available in either one- or two-man models. Its fast-cutting planerchain is equally capable of ripping or cross-cutting and an amazingly small amount of filing will keep it sharpened. A standard float-type carburetor remains in upright position always, even though engine and cutting attachment swivel through a full 360 deg. and lock at any angle for notching, felling or underbucking cuts. An automatic clutch stops the chain whenever the engine idles and also provides overload protection. All blade lengths for one- and two-man operation are readily interchangeable. Equipped with a 20-in. cutting attachment the smaller rig weighs 45 lb and the larger model, with 30-in. bar, chain, and idler-type tailstock weighs only 55 lb. Shown below, it is available from Reed-Prentice Corporation, Worcester 4, Massachusetts.



35 m.p.h. "C" hauls shovel rock

Babler & Rogers, Portland, used "C's" with Rear-Dump bodies on this 100,000-yd. relocation of the Columbia River Highway above Bonneville Dam. Rig's [illegible] turning-radius licked narrow dump and load areas.

with 18-ton rear-dump TOURNAROCKER

Here's just one profitable use for versatile, 35 m.p.h. C Tournapull prime mover. Coupled to 18-ton, rear-dump Tournarocker, it's a big-production hauler. Operator takes it through its cycle at top speed, with complete safety, because Tournarocker has 3763 sq. in. of braking surface—*more on one wheel than most haulers have on all four.* Holding action of powerful 4-wheel, disc-type air brakes, plus *front-wheel drive,* let Tournarocker back up to edge of bank, dump load clear. Eliminates rehandling, saves dozer clean-up. Simple electric hoist (no troublesome hydraulics) tips body to vertical position. Smooth, clean, streamlined bowl clears loads instantly. Big 9½′ x 12½′ top opening speeds loading from shovel, dragline, or loader . . . reduces spillage. In addition to big-payload and fast-cycle hauling with Tournarocker . . . money-saving interchangeability with Carryall *doubles* Tournapull's earning capacity. For example . . .

. . . converts to move scraper dirt

with 14 cubic yard CARRYALL SCRAPER

For less than 25% of the cost of the original unit, Tournarocker interchanges with a LeTourneau electric-control Scraper. All you need is Carryall body—same Tournarocker wheels and tires can be switched to Scraper, substantially reducing cost of unit interchangeability. The big 21.00 x 25 tires assure ample flotation in mud. Constant-pull, power-proportioning differential also reduces weather delays . . . gives positive traction on soft banks and slick grades. Thus, Carryall and Tournarocker keep your "C" prime mover working and earning all year 'round. Other auxiliary hauled units—including an 18-ton Bottom-Dump, 20-ton Flat-Bed and 15-ton Crane—further save time and reduce equipment investment per job. Your LeTourneau Distributor can also show you this money-saving Tournapull package in both *larger* and *smaller* sizes. Call him today for facts on performance . . . price . . . and delivery!

D. W. Winkelman Co., Syracuse, N. Y., owner of 19 "C's", [illegible] of these prime movers to Scrapers for highway construction in [illegible] Units moved 480 pay yds. of clay and sand hourly over [illegible]

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R. G. LeTOURNEAU, INC., *Peoria, Illinois*

HIGH-SPEED, RUBBER-TIRED EXCAVATING • HAULING • LIFTING EQUIPMENT

New conveyor attachment for tractors

Specially designed for contractors, this Con-Vay-It Special 12-30 has been used to handle wet concrete, mortar, bricks, blocks, shingles and a host of other building and construction materials. No cleats are used since the manufacturer found that concrete and grout adhered to them and caused continuous cleaning problems. Rubber, wood or plastic scrapers are used instead of steel to minimize belt wear. Actual tests showed less segregation on the Con-Vay-It than with wheelbarrows or buggies. Numerous washout holes are provided for access and cleaning. It will move wet concrete at the rate of 1 to 3 cu yd per minute, depending upon slump and elevation pitch. AMERICAN CONVEYOR COMPANY, 1115 WEST ADAMS STREET, CHICAGO 7, ILLINOIS.

Three new compressors offered by DeVilbiss

A ready supply of compressed air can be had almost anywhere with the introduction of three new portable air compressors by DeVilbiss. Trailer-mounted with standard hitch for towing behind a car or truck, the compressors can also be had with skid mountings where great mobility is not required or mounting in a truck body is desired.

Manufactured to deliver 21, 35 or 50 cu ft of air per minute, they are 4-cylinder, 2-stage V-type and feature trouble-free valves, forged steel crankshafts, balanced and precision ground ball-type main bearings and automotive insert-type rod bearings. The compressors have automatic oiling to all parts. Cooling is accomplished through finned heads, cylinders and inter- and after-coolers. The compressors have automatic unloaders, and are driven by

(*Continued on page 110*)

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to move more, faster... use more of your engine's hp.

The formula for moving any load at higher average speeds, *for less,* is simple:

Put your horsepower to work *effectively.*

Every time you lug your engine, or even let it drop below the maximum efficiency range, you lose profits.

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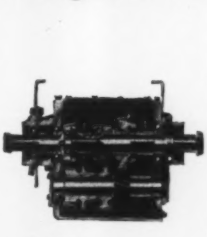
For the transmission is where *horsepower goes to work.* And Fuller has proved, time and again, to owner, to mechanic and to driver that Fuller Transmissions gear your rig to use more of your horsepower—to move more, faster, for less.

Illustrated are four of the wide selection of Fuller Heavy-Duty Transmissions. Ask for data on the type and hp. range in which you are interested.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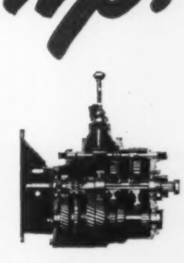
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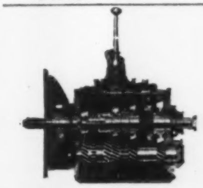
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Up to 25 mph fully loaded

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Heil scraper design helps make Heiliners faster — in the cut, faster on the haul, and faster on the fill!

You can heap it high and haul in a hurry, when you have a Heiliner on the job. Here's why:

- With Heiliner's open-top design, there are no structures or cables over the bowl of the scraper to limit the load.
- *Correct pitch and location of the scraper blade* cause dirt to boil into the bowl. The rear bowl sheet is sloped forward to conform to this boiling action — greatly reducing digging time. That makes your Heiliner faster in the cut!
- *Heiliner drive-wheels carry 70%* of the total vehicle weight, thanks to scraper yoke arrangement. You make full use of the powerful Cummins Diesel — get maximum traction at all times, and a top speed of 25 mph fully loaded. That makes Heiliner faster on the haul!
- *The floor of a Heiliner scraper tilts* to a discharge angle of 75 degrees. Even wet, sticky loads are pushed out quickly and cleanly. That makes your Heiliner faster on the fill!
- *Your Heiliner is easy to handle.* You get passenger-car steering, thanks to Heil's patented Hydro-Steer. Design of the hitch-post eliminates shimmying and wandering at high speeds.

Putting more pay into pay dirt is an old story to Heiliners. They've been carrying bigger loads—faster — at lower costs per yard on all sorts of jobs across the country.

Have your Heil road-machinery distributor demonstrate the Heiliner that meets your needs: The Series 800 Heiliner, with 18-cu. yd. scraper and 20-cu. yd. dump wagon. Or the Series 500 Heiliner, 13-cu. yd. scraper — the economical size for maintenance, stockpiling, and other small-yardage jobs. See your Heil distributor soon — or write and ask us to arrange a demonstration.

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R-131

Free! Bulletin RM-50008A on the Series 800 Heiliner. Bulletin RM-51002 on the Series 500 Heiliner. Write today for your copy of either bulletin—or both.

Safe, positive steering!
Exclusive Heil Hydro-Steer

Easy to service!
Less downtime, lower maintenance costs

Simple, easy-to-reach controls!
Levers adjustable to suit operator

Heavy-duty 4-wheel brakes!
Auxiliary hand-operated air control

IMPORTANT UNIT...
in an interesting
BULK HANDLING "Set-Up"

This 4-ton traveling crane of well known high quality expends its energy and efficiency through this 3-ton capacity.

OWEN BUCKET

Clay discharged into the craneway is water treated by fog-nozzles to reduce dust and increase water content to aid in ageing.

The 15,000-ton capacity warehouse 840' x 50' is serviced by two cranes and two buckets. Only two men are required to move the clay, combine the mix and feed the bins for the dry pan.

All of which simply proves again that for the greatest returns on the large investment in the crane it is also wisdom to buy the most efficient bucket available —an OWEN!

BUCKETS
AND
GRAPPLES
Write for Catalog

THE OWEN BUCKET CO.
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industrial type aircooled gasoline engines. These engines are available with either electric or magnetic engine starting systems. The 35 and 50 CFM compressors are equipped with governors to automatically slow down the engine while the compressor is unloading. The chassis of the units also serves as a tank, is equipped with a drain for accumulated moisture and is tested for 300 psi. DEVILBISS COMPANY, TOLEDO 1, OHIO.

Stik-tacks replace drawing board thumb tacks

Architects, engineers and draftsmen, when engaged in drawing, generally follow one of two methods to secure their papers to a drawing board: they use either thumb tacks or an adhesive tape of some sort. We believe they'll discard both methods after trying Stik-tacks. These are small discs, pressure-sensitive and adhesive on both sides. They stick readily to paper, wood, tile or glass—but not to the fingers—and peel off again readily when necessary. Almost paper thin, they leave no bulge between drawing board and paper, nor any sticky residue when removed. Handy, folding packages contain 82 or 328 Stik-tacks, as desired. Two sizes are available: ½ in. or ⅜ in. diameters.—THOMPSON-WINCHESTER CO., INC., 1299 BOYLSTON STREET, (DEPT. R) BOSTON, MASSACHUSETTS.

New product briefs . . .

Two-coat-a-day wall painting is uniformly possible with a **seal-coater** which has been placed on the market after more than two years of field testing and trial marketing by **E. I. Du Pont de Nemours & Company, Wilmington, Delaware.** The new product will dry in less than two hours under normal conditions. It can be applied over dry wall construction, wall board, oil-type flat wall paints or enamels, and to resin-emulsion paints and bare plaster.

Guaranteed shatterproof, the new **"Level-It"** level, is housed in amber Tenite plastic and designed for easy reading. The large bubble can be read at considerable distance and the liquid of which it is composed remains fluid through an extremely wide temperature range. Manufactured by **Creative Plastics Corporation, Stony Brook, N. Y.,** the Tenite plastic gives the level good resistance to weather and makes it impervious to salt and other corrosives.

PUBLICATIONS

Pipe corrosion booklet—Protection of buried pipes from corrosion with "Scotch" plastic tapes is described in a new illustrated booklet. Included are descriptions and illustrations of high speed machine and hand wrapping techniques of tapes No. 21 and No. 22 for protecting natural gas and water mains, joints and leads from corrosive effect of soil chemicals, oils and fats, stray ground currents and soil bacteria and fungi. The 8-page booklet cites case histories where wrapping methods described were used as well as problems resulting from pipe corrosion. MINNESOTA MINING AND MANUFACTURING CO., 900 FAUQUIER ST., ST. PAUL 6, MINN.

Scale selector—New Duraline drafting machine scales are illustrated and described in a 6-page bulletin printed in two colors. Advantages of the new aluminum scale are listed in addition to a chart showing all standard Duraline scale graduations commonly used. To aid buyers when writing for information on graduated scales for special uses, the bulletin provides an explanation of scale terminology in general use. UNIVERSAL DRAFTING MACHINE CORP., CLEVELAND 2, OHIO.

The Toledo story—Fifty years with the Toledo Pipe Threading Machine Co., are recounted in a handsome 20-page brochure celebrating the company's golden year. Along with information on notable events in Toledo's history, the two-color brochure illustrates and describes the "line-up" of Toledo pipe tools down through the years. TOLEDO PIPE THREADING MACHINE CO., TOLEDO, OHIO.

Caterpillar attachments—This 32-page catalog in white and typical Caterpillar yellow shows how you can further increase the value of your Cat diesel tractor by adapting it to a variety of jobs with the many attachments available. Some are for equipment protection, some for operator comfort, others for increased production, and so on. Each attachment is illustrated with at least one picture, and in most cases a close-up of the part and another photo of the rig in action join to illustrate its use. Just a few of the protective attachments include radiator shutter and curtain, mufflers, spark arresters, engine, radiator and crankcase guards. Production units include power take-offs, belt pulley drives, starting aids, push cups and pulling hooks. CATERPILLAR TRACTOR CO., PEORIA, ILLINOIS.

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EDITORIALS

Licenses for contractors?

The practice of requiring contractors to obtain a license to do work in a particular state or community has been growing slowly for many years. Today it threatens to grow faster—and an evaluation of results seems to indicate some doubt as to its efficacy.

The idea is perhaps laudable enough: Licensing could be a means of insuring responsibility on construction, of giving a guarantee of performance.

But there is considerable question whether these results are being obtained. Instead, for every favorable vote for contractor licensing, there can be found a dissenter who will point out such shortcomings as these:

Licensing laws, locally written, can become a means of protecting local contractors, keeping "outsiders" away.

Few, if any, laws include provisions that actually insure that the licensed contractor is responsible, or even a good workman.

The laws can become punitive weapons for local groups or officials bent on "getting" someone who doesn't conform.

In short, the result could be confusion, graft—and little or no added protection for the public.

The counter suggestion of many thoughtful construction men—that contractors be more widely bonded, rather than licensed—seems to make a good deal more sense. Bonding would insure responsibility; would require only one bond, good anywhere; would insure that the contractor had been thoroughly investigated; and would guarantee that the contract would be fulfilled. A closer look at licensing would be advisable before it is adopted more widely.

High lake levels

Damage to shore-front property on most of the Great Lakes is making the headlines these days (ENR May 15, p. 25 and May 22, p. 27). And those who suffer damage generally place responsibility on man-made changes in the amount of water flowing into or out of the lakes. The possibility that natural or cyclical changes may be the cause is conveniently overlooked, perhaps because they would not serve to support claims against the government while man-made changes might.

Blame for the current damage is being placed primarily on reduced diversions of water from Lake Michigan for sanitary purposes at Chicago; on the diversion of water from the Hudson Bay drainage basin into Lake Superior for power and pulpwood movements; and on a dam built 50 years ago across one small channel at the outlet of Lake Ontario to improve navigation in the channel approaching the Canadian canal around the rapids in the St. Lawrence River.

Where responsibility lies is to be decided, formally, by the International Joint Commission. However, from studies made by the staff of Col. Wendel P. Trower, division engineer of the Corps of Engineers, Great Lakes Division, and by the Lake Survey, the conclusion appears inescapable that Nature, not Man, is responsible. Man-made changes, even though they can be made to appear large, and have in the past been accorded special significance, can have only a minor effect on the levels of such vast bodies of water as the Great Lakes.

Consideration of that conclusion turns back the clock nearly half a century to the time when the Canadian government objected to the Chicago diversion, which our government regarded as a domestic issue since Lake Michigan lay entirely within the United States. The controversy was settled by the 1909 boundary water treaty, which authorized larger diversions of water on the Canadian side at Niagara for power purposes, but did not state specifically that this was to offset the Chicago diversion.

At that time the lake levels were declining as a result of what now appears to be cyclical weather changes rather than diversions at Chicago. But as the declining levels began to affect lake shipping, opposition to what Chicago was doing began to develop on this side of the border. As a result, Chicago was brought before the Supreme Court and ordered to reduce its diversions progressively as it built sewage treatment plants until the diversion was cut to 1,500 cfs. That limited diversion has been in effect since 1938.

Ironically, Chicago now is one of the chief sufferers from the slowly rising levels. The point is that she would not be significantly better off if diversions of Lake Michigan water had been permitted at a much higher rate. We are faced with another instance in which man's puny efforts are no match for Nature.

Getting public support

A lesson can be drawn from the successful efforts of the Northern Kentucky Sanitation District No. 1 to get 16 separate communities to cooperate on a sewage treatment program (ENR May 22, p. 45). In Kentucky, it was proved again that no amount of figures, charts, tables and highly technical discussions of bacteria count will sell a sewage treatment program to the general public as quickly as will a simple statement couched in personalized terms. Tell a taxpayer that he has to pay more taxes because the bacteria count in a stream is so many parts per million—and your answer will probably be a shrug or a thoughtful "is that so?", which means he doesn't understand, but won't admit it. But put the pollution on the basis of injury to his children's health; on the basis of visible mess floating on the stream; on the basis of economic loss to his community—and then you'll get a "sale."

GENERAL CONTRACTOR:
Stock Construction Corp.
New York, N. Y.

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American Bridge Co.
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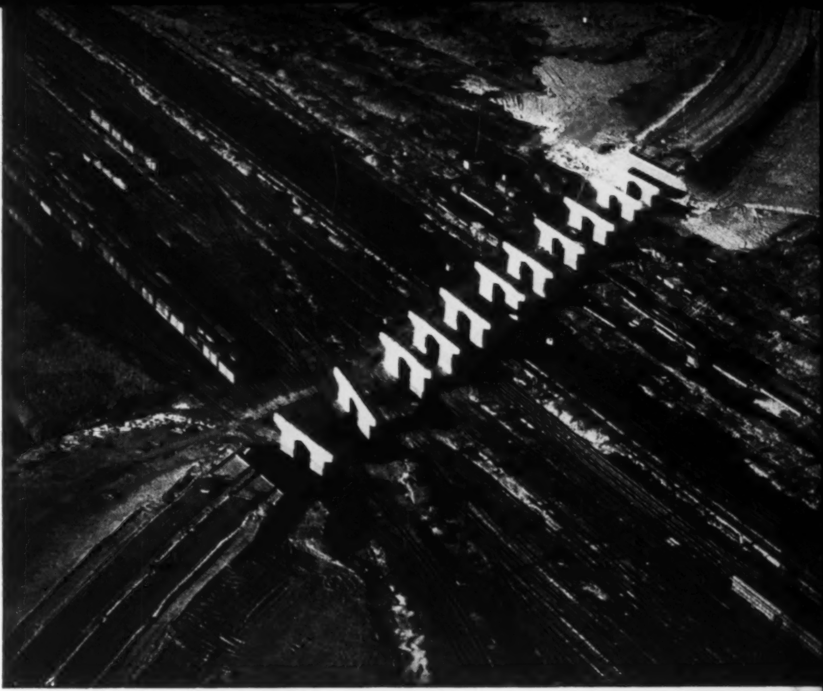

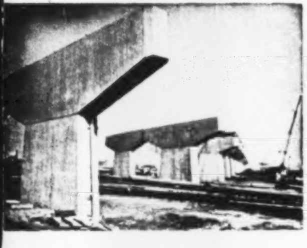

Raymond SALUTES THE NEW JERSEY TURNPIKE

RAYMOND IS PROUD to have played a vital part in the creation of this fabulous new cross-state highway. The railroad overpass near Ridgefield, N. J., is just one of several projects on the Turnpike that rest on Raymond Piles. 778 Raymond Pipe Step-Taper Piles driven for 11 piers and 2 abutments, with an average length of 120′ and a total footage of 93,283′ were used on this overpass—just another example of the part Raymond is playing in building tomorrow's world today.

SCOPE OF RAYMOND'S ACTIVITIES
Soil Investigations, Pile and Caisson Foundations, Underpinning, Harbor and River Improvements and Cement-Mortar Lining of Pipelines by the Centriline and Tate Processes.

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CONCRETE PILE CO.

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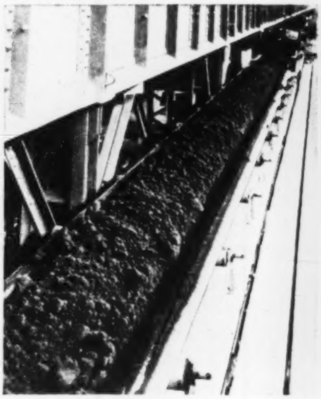
BRANCH OFFICES in the principal cities of the United States and Central and South America.

FOR LONG-LIVED HEAVY-DUTY CONVEYORS...

IT'S TIMKEN... AND TIMKEN... AND TIMKEN AGAIN!

Not one of the Timken® bearings in this Continental Gin Company conveyor has ever needed replacing. The 634 foot conveyor has been in service since 1944, handles 275 tons of gravel per hour.



100 tons of foundry sand are carried every hour by this Bartlett & Snow conveyor. Timken roller bearings keep idlers turning freely, reducing belt wear.

This belt lifts 900 tons of iron ore an hour to a height of 340 feet. Timken bearings in the Rex idlers made by Chain Belt Co. minimize maintenance and keep the heavy loads moving smoothly.

AND HERE ARE 6 BIG REASONS WHY:

1 **THOROUGHLY PROVED.** The Timken bearing is the only tapered roller bearing proved by 15 years or more of service in heavy duty conveyor installations using the popular dead shaft construction.

2 **EXTRA CAPACITY.** Line contact between rollers and races gives Timken bearings high load capacity. And by using Timken bearing sizes that are mass produced for the automotive industry, you get extra capacity bearings that actually cost *less* than the smaller sizes you'd normally use.

3 **LONG-LIFE LUBRICATION.** Not just lubricated for "life" but lubricated yearly, or as conditions require, to insure *long* life. Fresh lubricant ends any chance of gummy, sticky, jammed bearings.

4 **LONGER ROLLER AND BELT LIFE.** Less sliding and scuffing between idlers and belt.

5 **FRICTION MINIMIZED.** Timken bearings' true rolling motion and extremely smooth surface finish practically eliminate friction.

6 **MAINTENANCE REDUCED.** Long life and dependable performance of Timken tapered roller bearings cut maintenance to a minimum.

Remember "Timken" is not a bearing type. It is a trade-mark applying only to bearings made by The Timken Roller Bearing Company. Always insist on Timken bearings in the conveyors you build or buy. The Timken Roller Bearing Company, Canton 6, Ohio. Canadian plant: St. Thomas, Ontario. Cable address: "TIMROSCO".

Wherever the going's tough industry turns to

TIMKEN

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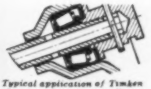
TAPERED ROLLER BEARINGS



Typical application of Timken bearings for conveyor idlers.

NOT JUST A BALL ○ NOT JUST A ROLLER THE TIMKEN TAPERED ROLLER BEARING TAKES RADIAL AND THRUST LOADS OR ANY COMBINATION